

2012



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 5, 2012 • 1:30-5:00 P.M.

UCF STUDENT UNION—PEGASUS BALLROOM, CAPE FLORIDA BALLROOM

Welcome to the Ninth Annual Showcase of Undergraduate Research Excellence.

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

The Showcase is part of the 2012 Student Research Week at UCF.

www.Showcase.ucf.edu

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ORDER OF EVENTS

WELCOME (*Pegasus Ballroom*) **1:35 P.M.**

Dr. Elliot Vittes

Interim Vice Provost and Dean of Undergraduate Studies
Associate Professor of Political Science

STUDENT PRESENTATIONS (*Pegasus Ballroom*) **1:40-4:15 P.M.**

FACULTY MENTOR OF THE YEAR (*Cape Florida Ballroom*) **4:20 P.M.**

Student Undergraduate Research Council

**REMARKS AND PRESENTATION
OF SCHOLARSHIPS** (*Cape Florida Ballroom*) **4:30 P.M.**

President John C. Hitt

Professor of Psychology

Dr. Elliot Vittes

Interim Vice Provost and Dean of Undergraduate Studies
Associate Professor of Political Science

STUDENT RESEARCH WEEK 2012

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.

Kathleen Bell	Amy Kleeman	Patrick Schelling
Monifa Beverly	Dimitry Kolpeshchikov	Jamie Schwartz
Bill Blank	Steven Kuebler	Shadab Siddiqi
Bob Borgon	Sumit Kumar Jha	Valerie Sims
Bo Chen	Peter Larson	Namrata Singh
Hyoung Jin Cho	Junho Lee	Hojun Song
Harold Corzine	Michael Loree	Challapalli Suryanarayana
Jon Decker	Kaveh Madani	Monica Susilo
Martin Dupuis	Nancy Marshall	Kerry Welch
Kenneth Fedorka	Daniel McConnell	JoAnn Whiteman
Arup Guha	Ram Mohapatra	Ciceron Yanez
Eric Hoffman	Karen Mottarella	Kevin Yee
James Hogg	Elizabeth Mustaine	Andrew (Hae-Bum) Yun
Jana Jasinski	Joshua Reece	Antonis Zervos
Mollie Jewett	Fernando Rivera	Lei Zhai
Travis Jewett	Kyle Rohde	Cliff Zou
Joo Kim	Erin Saitta	

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.

Rosalind Beiler
Kenneth Fedorka and Kimberly Schneider
Florida High Tech Corridor Council
Richard H. Harrison II in honor of Dr. Patricia Bishop
John (Rick) Schell
UCF Burnett Honors College
UCF Chapter of Sigma Xi
UCF Institute for Social and Behavioral Sciences
UCF Office of Research and Commercialization
UCF Office of Undergraduate Studies
UCF Student Government Association
Laurence von Kalm

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.

Deborah Altomare	Keith Folse	Mary Lou Sole	Valerie Sims
Jack Ballantyne	Jason Ford	Amelia Lyons	Dinender Singla
Aman Behal	Barbara Fritzsche	Kevin Mackie	Eileen Smith
Kevin Belfield	Alvaro Estevez	Luis Martinez-Fernandez	Janan Smither
Steven Berman	Martha Garcia	Carolyn Massiah	Hojun Song
Alaina Bernard-Kitchings	Ivan Garibay	Artem Masunov	Zixia Song
Karen Biraimah	David Gay	Daniel McConnell	Ken Stanley
Richard Blair	Michael Georgiopoulos	Cecelia Rodriguez-Milanez	Margo Storm
Patrick Bohlen	Xun Gong	Ann Miller	Michael Strawser
Joe Burden	Ali Gordon	Lisa Mills	Kiminobu Sugaya
Penelope Canan	Fon Gordon	Joanna Mishtal	Judit Szente
Michael Carney	Germaine Graham	Michele Montgomery	Marshall Tappen
Shannon Carter	Ratan Guha	Sean Moore	Suren Tatulian
Jeffery Cassisi	Glenda Gunter	Karen Mottarella	Ken Teter
Necati Catbas	Scott Hagen	Mustapha Mouloua	Terry Thaxton
Debopam Chakrabarti	Michael Hampton	Robert Muisse	Pamela Thomas
Ni-Bin Chang	Don Harper	Mark Muller	Gregory Thompson
Jason Chesnut	Joseph Harrington	Daniel Murphree	Alexander Tovbis
Kristina Childs	Christopher Hawkins	Saleh Naser	Meredith Tweed
Youngsoo Choi	Bari Hoffman	Dan Novatnak	Eleazar Vasquez
Manoj Chopra	Elizabeth Hoffman	Chad Nye	Joseph Vasquez
Roy Choudhury	Eric Hoffman	Nina Orlovskaya	Laurie von Kalm
Alexander Cole	James Hogg	Shelley Park	Betsy VonHolle
Ilenia Colon-Mendoza	Charles Hughes	Christopher Parkinson	Linda Walters
Joshua Colwell	Marcel Ilie	Yovanna Pineda	John Weishampel
Norma Conner	Suhada Jayasuriya	Roberto Potter	Grace White
William Crampton	David Jenkins	Seetha Raghavan	Janet Whiteside
Edwidge Crevecoeur	Florian Jentsch	Debra Reinhart	Shannon Whitten
Max Croft	Travis Jewett	Fernando Rivera	Graham Worthy
Andrew Daire	Mollie Jewett	Linda Rosa-Lugo	Chrysalis Wright
Henry Daniell	Sumit Jha	Jeffrey Rosky	Jingdong Ye
C. David Cooper	Jayanta Kapat	Houman Sadri	Cherie Yestrebky
Damien Dechev	Alain Kassab	Haripada Saha	Antonis Zervos
Weiwei Deng	Jennifer Kent-Walsh	Eduardo Salas	Lei Zhai
Aristide Dogariu	Yoon-Seong Kim	Maria Santana	Shaojie Zhang
Thomas Dolan	Sugaya Kiminobu	Swadeshmukul Santra	Shengli Zou
Amy Donley	Dmitry Kolpashchikov	Kristen Schellhase	Cliff Zou
Annelise Driscoll	Joseph LaViola	Alfonse Schulte	
Tosha Dupras	Connie Lester	John Schultz	
Richard Eastes	Xin Li	William Self	
Steven Ebert	Yi Liao	Denver Severt	
Costa Efthimiou	Victoria Loerzel	Shadab Siddiqi	
Kenneth Fedorka	Michael Loree	Michael Sigman	

ARTS AND HUMANITIES

DANIELLE BECKER

Dirty Pop: Evaluating Impact of Soda Consumption and Its Consequences to Motivate Behavioral Change in High School Students

Student Co-Authors: Bonnie Santos, Racine Davis, Tabitha Hayden, Leigh Hart, Amanda Horta, Gary Joachim
Mentor: Ms. Eileen Smith (Visual Arts and Design)

The project uses an interactive gaming website to promote consumption awareness of diet and regular soda. Our goal is to educate a high school audience and assess their intention to improve dietary habits.

ADEE BENARTZY

The Pastel Study: Communicating Sexuality and Promiscuity in Late Nineteenth-Century Paris

Mentor: Dr. Ilenia Colon-Mendoza (Visual Arts and Design)
This research endeavor argues, through contextual and formal analysis, the chief qualities of the pastel medium in capturing the hyper-sexual quintessence of the Parisian female in late nineteenth-century France, thus raising the pastel's overall credence as a fine arts medium.

CHRIS BHULAI

C.A.R. - Center for Automotive Research: A Virtual Universe for All Things Automotive

Mentor: Ms. Eileen Smith (Visual Arts and Design)
This pilot is for a virtual environment where the user will learn about different aspects of cars. The environment is modeled after an automotive workshop with categories that are dragged and dropped to the bench surface, thus revealing the content. To ensure broad appeal diverse categories explore other subjects.

MICHAEL BROOKS

Civilizing the Metropole: The Role of the 1889 Parisian Universal Exposition's Colonial Exhibits in Creating Greater France

Mentor: Dr. Amelia Lyons (History)
The project analyzes how the organizers of the 1889 Parisian Universal Exposition used the exposition's colonial exhibits to instill a sense of Greater France into the French public's consciousness and to convince an apathetic French public of the benefits of maintaining a colonial empire.

KYLE CARTECHINE

Harnessing UCF's Kinetic Potential: Creating a Smarter Grid One Step at a Time

Student Co-Authors: Brice McCoy, Daniel Simpson, Greg Boatright

Mentor: Mr. Max Croft (Visual Arts and Design)
The intention of this research is to investigate alternative energy sources to help supplement campus energy consumption. Our research is focused on harnessing the kinetic power of a simple human footstep in combination with piezoelectric technology, energy storage, and social media environments.

ALEXANDER CHERNOFF

How Cities Learn: Investigating Social Media's Influences on Local Discourse

Mentor: Ms. Eileen Smith (Visual Arts and Design)
An investigation into how social media implementation can be used more effectively to inform and educate a city populace. How many people use social media as a source for local news? We begin with questions regarding social media usage and awareness, and cross those results with knowledge of local events.

ATHIA CHOUDHURY

Story Lines: Moving Through the Multiple Imagined Communities of an Asian-/American-/Feminist Body

Mentor: Dr. Shelley Park (Philosophy)

I explore the lived tensions that exist within Asian-/American identities and within American-/Feminist identities. I focus on the tension between seemingly conflicting obligations to kinship on the one hand and to feminist practice on the other—discussing the hyphenated-hybrid subject's relationship to objects within kinship and feminist spaces.

TAYLOR CLAUSEN

Kinect & Unity: Exploring Full Body Motion Tracking with the Microsoft Kinect and Unity 3D Game Engine

Student Co-Authors: Michael Colon, Heather Buchanan, Bryan Raborn

Mentor: Ms. Eileen Smith (Visual Arts and Design)
Using the Unity 3D game engine, we imported full body motion tracking data in real time directly from Microsoft Kinect. We created an interface that implements data in conjunction with a library of provided assets to create an interactive storybook that combines the elements of interactivity, storytelling, and print.

SARAH MIA DRENNEN

Economic Developments and Stagnation in Early Modern Spain and Subsequent Impact on Historical Costume and the Textile Industry

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

The economic history of Spain during its many recurrent periods of development and stagnation displays a relationship between historical dress influence and socio-economic status. This has served as a basis of interpretation of the standards of living throughout early modern history.

DREW FEDORKA

Projecting Grandeur: President de Gaulle's State Visits and Summitry of Spring 1960 in Historical Perspective

Mentor: Dr. Amelia Lyons (History)

This study examines how French President Charles de Gaulle employed statesmanship, through two official state visits and the East-West Paris Summit in April and May 1960, as part of a broader goal to shape public opinion and project national renewal under Gaullist leadership in the nascent French Fifth Republic.

GABRIELLA GARCES

Language Contact and Change: Shifts in Pronunciation Patterns and Prestige in Peninsular Spanish

Student Co-Author: Jay Harrington

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

The objectives are to investigate whether the Andalusian dialect is being lost in favor of the more prestige variety of central and northern Spain, challenge the present theories and perceptions of Andalusian Spanish, and expand the body of research with this extensive study of language use in this region.

CHRISTIAN GRISANTI

What Neighborhood Fits Me: An Online Tool Connecting Home Buyers and Real Estate Agents

Student Co-Authors: Keegan Berry, James Horne, Paul Nguyen, Stefaney Roberts, Matthew Whitaker

Mentor: Mr. Michael Carney (Visual Arts and Design)

What Neighborhood Fits Me is a tool that helps both first-time home buyers and their agents by using Geo-location information to find a location for their first house. By targeting first-time home buyers, we hope to lessen the challenges of buying a home for the first time.

AUSTIN HODGES

A Love Project

Mentor: Mr. Dan Novatnak (Visual Arts and Design)

A Love Project is a social tool designed to facilitate a deeper conversation on love. It engages users through a combination of multimedia to draw connections between concept and reality.

ALANNA HONIGMAN

iCREATE: Individualized Cognitive Rehabilitation Environments for Assessment, Treatment, and Engagement

Student Co-Authors: Tamra Pristou-Globokar, Jessica Sorkin, Chelsea Coats, Adam Boerema, Aaron Giordano-Barry, Alejandro Ruiz

Mentor: Dr. Janet Whiteside (Communication Sciences and Disorders)

iCREATE is a virtual learning environment for the rehabilitation of traumatic brain injury survivors that tests selective attention (filtering out unnecessary outside distractions). Therapists will determine the recovery level of long-term TBI survivors more accurately by how the survivor handles distractions and how quickly the given objective is completed.

LOGAN KRIETE

The Committee Documentary Film

Student Co-Author: Monica Monticello

Mentor: Dr. Lisa Mills (Film)

We produced a 26-minute documentary film that investigates a little-known dark period of Florida's history when a government-sponsored legislative committee interrogated and expelled students and teachers from public state universities simply for being gay and/or associated with the LGBTQ-rights movement.

AUBREY KUPERMAN

Positivism and Women in Turn-of-the-Century Buenos Aires: An Attempt to Maintain a Patriarchal Society

Mentor: Dr. Yovanna Pineda (History)

At the turn of the twentieth century, mass immigration to Argentina led to elite fears of social unrest. This project studies the Argentine elite's use of the French philosophy of Positivism to maintain an orderly, patriarchal society and the impact of these efforts on women.

KEVIN MERCER

Adventures in Right Livelihood: Understanding the Legacy of a Hippie Commune

Mentor: Dr. Connie Lester (History)

This research examines how The Farm, a preeminent counterculture commune, was able to influence mainstream American society through their living by their example of "right livelihood."

RACHEL MILES

Half-Bloods, Heritage, and Narratives of Passing in the World of *Harry Potter*

Mentor: Ms. Meredith Tweed (Women's Studies)

I investigate the existence and implications of different narratives of passing in *Harry Potter*. By focusing on characters of both Muggle and magical parentage, I examine a space of ambiguity allowing these characters to pass between worlds successfully, as well as how this passing is complicated by gendered heritage patterns.

DETRACHIA NEELY

Getting Your Words in Print: Researching, Writing, Editing

Mentor: Dr. Cecilia Rodriguez Milanés (English)

The purpose of the project was twofold with the ultimate goal of publication. The first part required researching publication venues that are appropriate for my creative work, as well as seeking suitable presses for my mentor's edited collection. The second stage required editing my short fiction for publication.

MELISSA PALOMINO

Perspectives on Defectors from the Cuban National Ballet

Mentor: Dr. Luis Martínez-Fernández (History)

The National Ballet of Cuba is internationally famous for their lively style of dancing classical ballet. Recently, many dancers have defected both the company and the country. By studying the company's history and performances, I've created a film that will take the viewers on a journey through the dancers' experiences.

SARAH PARKER

Knights Earth: Development of a Map Application Revealing Sustainable Practices and Environmental Initiatives at UCF

Student Co-Authors: Ryah Harrigan, Cecily Hernandez, Regina Postrekhina, Kristina Ramdial, Bryan Salicco, Paul Vines, Jacques Werleigh

Mentor: Dr. Michael Hampton (Chemistry)

A campus map highlighting UCF's commitment to climate-neutrality will be designed, tested, and the final product made available. User input is utilized to modify the map, both website and mobile versions, thus optimizing its utility for providing visitors, students, and faculty an inside look at sustainable practices and environmental initiatives.

JENNIFER RICE

Digital Groves: Marketing Innovation on the Web

Mentor: Mr. Michael Carney (Visual Arts and Design)

Digital Groves is a pilot project with the intent to converge three types of media into an online portfolio. In addition to media convergence, the goal is to efficiently present and market an online portfolio for a professional outsource studio focused on digital asset creation.

SAMUEL ROBERTS

Heirlooms

Mentor: Mr. Dan Novatnak (Visual Arts and Design)

Our project is an attempt to make an objective based educational game of communal sustainability, which teaches children the value of hard work, investment, and effective time management.

GENESYS SANTANA

A Case of Double Consciousness: Americo-Liberian and Indigenous Liberian Relations 1840-1930

Mentor: Dr. Fon Gordon (History)

This study is the first to employ the theoretical framework of double-consciousness to further illuminate the ambivalent positions of the Americo-Liberians vis-à-vis indigenous Liberians. This study argues that the internalization of Western notions of civilization led Americo-Liberians to establish an oppressive regime similar to the one they had escaped from.

ESTEBAN SANTIS

Deus ex Machina and Manipulation of time in “A New Refutation of Time,” “The Secret Miracle” and “The Other Death”

Mentor: Dr. Cecilia Rodriguez Milanes (English)

I analyzed Jorge Luis Borges’s spirituality in three texts: “A New Refutation of Time,” “The Secret Miracle,” and “The Other Death.” Furthermore, I examined how the concept of time magnified Borges’s seemingly covert spirituality.

SAMANTHA SCHROEDER

The Nature of Love: A Phenomenological Approach

Mentor: Dr. Michael Strawser (Philosophy)

I shall attempt to disambiguate the common assumptions regarding the nature of love. I present a thorough phenomenological account in order to understand the human affective sphere and its role in love. What I propose is a moral act of the will that involves a total participation of the self.

ALICE SPICER

Creativity: Transcending Memory Loss

Mentor: Ms. Terry Thaxton (English)

Using the theme “the ability to transcend”, this interdisciplinary, multimedia work focuses on the creativity of people who have dementia. It explores the use of non-traditional storytelling to gather information about a possible increase in creativity that accompanies the loss of cognitive ability.

AMY THRELKELD

Cell Barrage: An Education Video Game

Student Co-Authors: Benjamin Augspurger, Jessica Stewart

Mentors: Ms. Pamela Thomas (Biology), Ms. Eileen Smith (Visual Arts and Design)

The primary objective was to create a casual, educational video game that would be both engaging and academically stimulating, and that would be approved as supplementary material for a selected curriculum for distance learning, post-secondary students.

LEANNE WIGGINS

Native American Education, 1880-1900

Mentor: Dr. Daniel Murphree (History)

This research focused on the United States’ first attempt at government-sponsored boarding schools for Native Americans between 1880 and 1900, the Carlisle Indian Industrial School. Issues such as the curriculum, manual labor, forced attendance, side effects, and public perceptions of Native American education are explored.

ENGINEERING AND COMPUTER SCIENCE I

PATRICIA AUBUCHON

Structural Applications of Natural Fiber Reinforced Polymers

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

This project studied the behavior of natural fiber reinforced polymers (specifically flax and hemp) and epoxy when used as structural reinforcement. Previous studies have found the tensile strength to rival that of glass FRP; this assumption, as well as the behavior of said fibers once applied as reinforcement, was tested.

JOSHUA BERNSTEIN

Filtering Acoustic Measurements in Non-Ideal Environments with External Noise

Mentor: Dr. Jayanta Kapat (Mechanical, Materials, and Aerospace Engineering)

Using microphones to pinpoint frequencies found in unsteady fluid flows in place of intrusive hotwire probes to detect complex flow phenomena in wind tunnel studies.

GISELLE BORRERO

A Winner-Take-All Methodology: Finding the Best Evolutionary Algorithm for the Global Optimization of Functions

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

We propose a new methodology, called Winner-Take-All (WTA), that allows a suite of global optimization algorithms to efficiently run in parallel by allocating more resources to algorithms that perform well. Using this methodology we introduce WTA algorithmic variants that are shown to be very competitive with constituent algorithms in the suite.

THOMAS BOUCHENOT

A Modified Neuber’s Rule for Thermomechanical Fatigue at V-Shaped Notches

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

The subject of this research is to develop a model for thermomechanical fatigue (TMF) of geometries containing notches and to determine the applicability of Neuber’s Rule under non-isothermal conditions. The focus will be on V-shaped notches in either round or flat structures.

JAMES DINAN

Stress and Temperature Effect on the Structure and Vibrational Properties of LaCoO₃ Based Ceramic Perovskite

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

Experiments were conducted to determine the vibrational properties in the structure of LaCoO₃ upon heating with a solid silicon 532nm laser using micro Raman spectroscopy. In addition, LaCoO₃ was placed under in-situ three-point bending in order to study vibrational properties under stress.

ERICH DONDYK

Denial of Convenience Attack to Smartphones Using Fake Wi-Fi Access Point

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

This project considers a novel denial of service attack targeted at smartphones’ operating systems, which we call a Denial of Convenience (DoC) attack. Different defenses against this type of attack are introduced and their strengths and limitations measured.

CARLIN DUNLOP

Efficiency Analysis of Two Silt Fence Types in Reducing the Solids in Stormwater Runoff from Construction Sites

Student Co-Authors: Michael Depree, Vincent Lorbis

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

The objective of the research is to investigate and analyze the effectiveness of both belted strand reinforced fiber (BSRF) silt fence and ARS 1400 (Type C) silt fence in decreasing the solids in stormwater runoff.

JAMES DURYEYEA

Bond-Slip Behavior of Fiber Reinforced Polymer Composites Bonded to Metallic Substrates

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

The local bond behavior of several FRP repair systems adhered to steel and aluminum will be experimentally determined and developed into a bond-slip model. This model can then be incorporated into a nonlinear finite element analysis capable of describing the response of system.

CHRISTOPHER ECHANIQUE

Characterization of an Advanced Neuron Model

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

After researching many neuron spiking models, I have chosen a model that is both computationally efficient and biologically plausible. My research involves utilizing this model and parameter estimation techniques to parameterize in vitro voltage tracings of rat motoneurons.

NATHANIEL ENOS

Understanding the Balance Between Economic Equality and Economic Growth: A Generative Computational Approach

Mentor: Dr. Ivan Garibay (Electrical Engineering and Computer Science)

To test different economic structures in silico with the goal of maximizing GDP and minimizing the Gini coefficient (inequality) with the hope of finding an optimal middle ground for economic growth and population well-being.

STEVEN FELDMAN

Design and Implementation of a Bounded Wait-Free Hash Table

Mentor: Dr. Damien Dechev (Electrical Engineering and Computer Science)

We designed the first wait-free hash table that is free from the hazards that lock based and lock-free designs suffer from. A wait-free hash table would be of considerable benefit to programmers who rely on concurrent data structures to improve the scalability and performance of their applications.

CATHERINE FELTER

Comparing Permeability of a Sandy Soil and a Rapid Flow Filter Media

Student Co-Author: Julia Felter

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

This research project examined the permeability differences between sandy soil and the soil amendment Bold & Gold. Both mediums were tested to see which was more suitable for rapid filtration of stormwater runoff.

NATHAN FIST

Mechanical Properties & Residual Thermal Stresses of Spark Plasma Sintered ZrB₂-SiC Composites

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

ZrB₂- 10, 20, 30wt%SiC UHTC composites were produced by Spark plasma sintering, and then their mechanical properties were measured. In addition, an attempt was made to determine the thermal residual stresses by using micro-Raman spectroscopy.

SPENCER FRANK

A Theoretical Model of Load-Transfer in an Alumina Nanoparticle Filled Epoxy Matrix to Obtain Stress-Sensing Characteristics

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

A theoretical model is used to resolve the relationship between alumina nanoparticle concentration in an epoxy matrix and the hydrostatic stress experienced by the nanoparticle. The relationship obtained can be used to acquire the stress-sensing characteristics of a nanocomposite for application to in-situ stress measurements on aerospace structures.

SCOTT GLANCY

Implementing a New Innovative Green Technology: Using Pervious Pavements to Reduce Stormwater Runoff

Student Co-Author: Eric Westring

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

This research examines the performance of 11 different pervious pavement systems. The focus of this study is to collect data on the change in infiltration rates for newly installed pavement, pavement clogged with sediment, and after rejuvenation using a vacuum truck.

SKYLER GOODELL

Hive-Brain Neuroevolution for Real-World Multiagent UGV Operations

Mentor: Dr. Ken Stanley (Electrical Engineering and Computer Science)

This work builds on previous research on evolving Artificial Neural Networks (ANNs) for teams of multiple agents. My research contributes to a team effort in the Evolutionary Complexity Research Group to introduce unique hive connections between individually functional ANNs allowing for direct "brain to brain" communication between agents.

JENNIFER GRAHAM

Collision Avoidance Algorithms for Pedestrians in Large-Scale Virtual Worlds

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

Through working with the Synthetic Reality Lab (SREAL) on one of their major projects, simulating the 1964/65 New York World's Fair, I will introduce an alternative approach to simulating crowd behavior within the fair using the collision-avoidance library Reciprocal Velocity Obstacles (RVO) to model typical pedestrian behavior.

STEPHEN GUIMOND

Investigation of Oscillatory Magnetic Field Heat Transfer Augmentation in Ferrofluids

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

This study focuses on the effect of an oscillatory magnetic field on the heat transfer rate of a fluid mixed with iron particles under natural convection. The problem was simulated using the computational fluid dynamics software ANSYS Fluent in both two and three dimensions.

TONY GUTIERREZ

Computational Fluid Dynamics in Aeroacoustics: Investigation of Sound Generation from Flow Interactions with an Airfoil

Mentor: Dr. Marcel Ilie (Mechanical, Materials, and Aerospace Engineering)

Sound generated from an airfoil's interaction with its surrounding flow is simulated to minimize the noise and vibrational effects acting on the airfoil.

WILLIAM GYSI**Stress-Sensing Nanomaterials Using Photo-Stimulated Luminescence Spectroscopy***Student Co-Author:* Kevin Lautenslager*Mentor:* Dr. Seetha Raghavan (Mechanical, Materials, and Aerospace Engineering)

The purpose of this work is to develop a material sensing system that will enable quantitative measurement and non-invasive monitoring of stress distributions within a matrix using piezospectroscopy.

JASON HAGLUND**Man-Portable Power Generation via Superadiabatic Porous-Media Combustion and Thermoelectric Conversion***Mentor:* Dr. Nina Orlovskay (Mechanical, Materials, and Aerospace Engineering)

The aim of the project was to design a man-portable electric generator via superadiabatic porous-media combustion and thermoelectric conversion. Simulation-based numerical methods were implemented for optimizing the design parameters for maximum net system power density. This analysis involved researching thermoelectric generators, porous-medias, and methods for superadiabatic combustion in porous media.

EVAN HALL**A Study of Stress Corrosion of Al 7075-T651***Mentor:* Dr. Ali Gordon (Mechanical, Materials, and Aerospace Engineering)

With the use of fracture testing, saltwater corrosion of an aluminum alloy will be studied in order to ascertain the true failure mechanism and to create an accurate life prediction model. Various sets of data will be compared in an effort to understand the corrosion of the aluminum alloy.

TANNER HAST**Optical Determination of Poisson's Ratio and Fracture Mechanism Mapping of Woven 316L SS Micron Mesh for Energy Applications***Mentor:* Dr. Ali Gordon (Mechanical, Materials, and Aerospace Engineering)

To analysis 316L Stainless steel micron mesh for its practical energy application in filtration and fuel cells. The analysis was to determine if the Poisson's ratio could be determined through optical observations under uniaxial tensile testing and to construct a fracture map diagram.

PATRICK HYNES**Weakly Supervised Object Detection and Localization in Images***Mentor:* Dr. Marshall Tappen (Electrical Engineering and Computer Science)

A method is presented for determining the location in an image where an object is present, which only requires information on whether or not an object is present in any particular images used for training the system.

JARED LILYQUIST**Implementing Big Integer and RSA Algorithm in Software and Hardware***Mentor:* Dr. Ratan Guha (Electrical Engineering and Computer Science)

Implement a big integer class in C++ that mirrors the functionality of the BigInteger class of Java; design hardware components that implement all the major big integer computations: addition, subtraction, multiplication, division, mod, modular exponentiation, and modular inverse.

CHARLES MANSFIELD**Optimization of the Hot Rolling Parameters Using ANSYS and LS-DYNA***Mentor:* Dr. Ali Gordon (Mechanical, Materials, and Aerospace Engineering)

An input file was designed that, using the ANSYS and LS-DYNA simulators, performed a range of hot-rolling simulations in order to assess the effects of variation in geometrical and mechanical properties on the strain conditions of the finished sheet.

**ENGINEERING AND
COMPUTER SCIENCES II****MICHAEL MCCREIGHT****Flexible Carbon Nanotube Pressure Sensor***Student Co-Author:* Steven Kobosko*Mentor:* Dr. Lei Zhai (Chemistry)

The objective of this research is to develop and analyze a novel pressure sensor incorporating carbon nanotubes (CNTs) within various fabrics and papers. This research will generate a very sensitive and cost-effective pressure sensor for numerous applications in many fields.

CAMERON MCQUEEN**The Design and Assembly of an Autonomous Robotic Prototype***Mentors:* Dr. Suhada Jayasuriya, Mr. Don Harper (Mechanical, Materials, and Aerospace Engineering)

The project was the creation of an autonomous device. A robotic systems was used and tested to have its own automatic controls.

KUNAL NAYEE**Characterization of Zinc Oxide Solubility in the Presence of Humic Acid Using Octanol-Water Partition Coefficient***Mentor:* Dr. Debra Reinhart (Civil, Environmental, and Construction Engineering)

The objective of this project is to understand how ZnO can be transported in the environment through fundamental chemical process.

THUYTIEN NGUYEN**Medical Image Segmentation of MRI and CT Scans to Create 3-D Models of the Aorta for Computational Fluid Dynamics Studies***Mentor:* Dr. Alain Kassab (Mechanical, Materials, and Aerospace Engineering)

The hemodynamics and flow field in the aorta is studied with computational fluid dynamics on three dimensional models of the aorta constructed from patients' MRI and CT scans using image segmentation in order to make the most prudent surgical decisions for patients with cardiovascular diseases.

NATHAN OCHOA**Interventions to Motivate Constructivist Learning Within a Virtual Environment***Mentor:* Dr. Joseph LaViola (Electrical Engineering and Computer Science)

Within the Minds of Chimera environment, where players learn physics through constructivist learning, this study evaluates whether interventions created with the intentions to inspire enable participants to create more creative content.

EMANUEL OZUNA VARGAS

Testing of a Kinetic-Based Mathematical Model for a Sewage Sludge Gasifier

Mentor: Dr. C. David Cooper (Civil, Environmental, and Construction Engineering)

In the field of renewable energy, gasification is the process by which organic materials are transformed into a gaseous mixture that can be used for fuel. The study reported here details how data were acquired, evaluated, and refined for use with a kinetic-based mathematical model for a sewage sludge gasifier.

EVAN PRADO

Structural Health Monitoring with Fiber Optic Sensors

Student Co-Author: Alex Hanhold

Mentor: Dr. Necati Catba (Civil, Environmental, and Construction Engineering)

A cost-effective and reliable method for monitoring and detecting damage on structures, such as bridges, is sought. Thus, a scale model of a bridge was analyzed in a novel way with fiber optic sensors and data acquisition system.

DANIEL RAMIREZ

Highly Selective Compact Tunable Narrowband Radio Frequency and Microwave Filter Circuit

Mentor: Dr. Xun Gong (Electrical Engineering and Computer Science)

To investigate the implementations of filters in radio frequency and microwave systems and to realize the optimization of the selectivity while still maintaining a low loss, a narrow-band, and a high transmission.

MANUEL ROBAYO

Porous Media Burner Coupled with Thermoelectric Modules for Portable Power Generation

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

The objective of this project was to obtain preliminary results, and to develop future capability to conduct research of combustion inside ceramic porous media coated with catalytically active materials.

JOHAN RODRIGUEZ

Electrospray Deposition of PEDOT:PSS and P3HT for Applications in Thin Film Organic Solar Cells

Mentor: Dr. Weiwei Deng (Mechanical, Materials, and Aerospace Engineering)

To prove the feasibility of depositing thin film organic solar cell materials via electrospray atomization. Furthermore, to understand the effects of the deposition parameters on the nanostructure of the individual layers.

CHRISTOPHER ROSS

Improving Collaborative Creativity in Minds of Chimera Through Easily Usable Creation Tools

Mentor: Dr. Joseph LaViola (Electrical Engineering and Computer Science)

Allow players more creative control in instances of play and ability to share their instances of constructivist play.

STEVEN SCOTT

The Role of Thermo-Mechanical Loads on Depth-Resolved Strain in EB-PVD Thermal Barrier Coatings: In-Situ Synchrotron Studies

Student Co-Author: Alan Lui

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

To determine how thermo-mechanical loads influence the strain throughout the depth of thermal barrier coatings during replicated engine operating conditions. The synchrotron measurements are taken in-situ to better understand the in-cycle strain development leading to failure.

DAVID SILJEE

Modeling Material Behavior of Thermal Barrier Coatings During Thermal-Mechanical Loading for Comparison with Experimental Results

Student Co-Author: Albert Manero II

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

Model material behavior of thermal barrier coatings utilizing finite element software with validation from current in-situ experimental data, in order to predict stress variations within the multi-layered material system.

JAMIE SKOVRON

Effect of Nano-Paper Coating on Flexural Properties of a Fire-Treated Glass Fiber-Reinforced Polyester Composite

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

Glass fiber-reinforced polyester (GRP) composites were analyzed with and without a carbon nano-paper coating to determine the physically based microstructural damage mechanisms influenced by the addition of the thermal barrier coating (TBC) post independent firing and mechanical loading.

KEVIN SMITH

Correlation Between Fracture Toughness and Frequency During Ultrasonic Surgical Cutting of a Linear Viscoelastic Material

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

A finite element debonding contact model will be used to develop an approach for measuring the minimal force and optimal frequency required to cut a viscoelastic material under ultrasonic loads during surgical applications. This model will be empirically validated by testing an ultrasonic elliptical biopsy punch on animal skin.

ANDREA SOLANO

Audience Response System: Ease Audience Responses in a Technological Manner

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

The goal of this project (in collaboration with Orlando Health Rehabilitation Institute) is to design an audience response system (ARS) to be used at weekly medical meetings where rehabilitation specialists brief the physiatrist on patient progress during the previous week.

TYLER STIGLIANO

Implementation of Simultaneous Localization and Mapping for Navigational Purposes on UCF Manus Arm

Student Co-Author: Stephen Sheldon

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

Using a 2D laser scanner and microcontroller controlled tilt platform, 3D environments will be reconstructed for use in target recognition, obstacle avoidance, and robot arm path planning.

MATTHEW SUTTINGER

Image Reconstruction and Target Acquisition Through Compressive Sensing

Mentor: Dr. Robert Muise (Mathematics)

An algorithm is developed to compressively sense an image and reconstruct it with compressed data. This technique is adapted for target sensing.

KRISTIAN SZYMANSKI

Synthetic Fuels: Thermal Stability and the Impact of Their Chemical Composition in Aircraft Performance and Fuel Systems

Mentor: Dr. Jayanta Kapat (Mechanical, Materials, and Aerospace Engineering)

The Synthetic Fuels Project at CATER at UCF is to assess the suitability for operation of several renewable fuels developed by New Mexico State University and the UCF Chemistry Department by studying thermal stability and the impact on elastomer materials common of aircraft fuel systems using a small-scale turbine.

PETER TONNER

Transcriptomic Profiling of Ribosomal Protein Pseudogenes in Diverse Human Tissues

Mentor: Dr. Shaojie Zhang (Electrical Engineering and Computer Science)

Ribosomal proteins (RP) play a critical role in cell functionality. RP pseudogenes permeate the human genome and are considered non-functional DNA. We use the new transcriptome sequencing technology RNA-Seq to profile transcription of RP pseudogenes across sixteen human tissues and identify a number of RP pseudogenes with significant expression.

LUCKY TRAN

Effect of Rib Aspect Ratio on Heat Transfer and Friction in Rectangular Channels

Mentor: Dr. Jayanta Kapat (Mechanical, Materials, and Aerospace Engineering)

An experimental and numerical study on the heat transfer and friction augmentation in the fully developed portion of a 2:1 aspect ratio rectangular channel with orthogonal ribs at channel Reynolds numbers of 20,000, 30,000, and 40,000.

AMANDA TRITINGER

Renewable Energy from the Florida Current

Mentor: Dr. Scott Hagen (Civil, Environmental, and Construction Engineering)

The Florida Current is a viable source of renewable energy; however, there are scientific questions as to the time and space scales required to realize its energy potential. The aim of this research is to ask and answer questions related to energy recovery from the Florida Current.

IVAN TRIVINO

Turbulence Model Comparison of Flow Over a Backward-Facing Step

Student Co-Author: Johnny Castro

Mentor: Dr. Marcel Ilie (Mechanical, Materials, and Aerospace Engineering)

Two turbulent models were compared in order to determine their relative accuracy at solving for the real flow over a backward-facing step. The numerical solutions obtained were validated against experimental results. The contrast of results serves to improve the numerical schemes used in these models.

ERIC VAN BEMMEL

CFD Analysis of the Boeing X-48B

Mentor: Dr. Marcel Ilie (Mechanical, Materials, and Aerospace Engineering)

I will compute aerodynamic characteristics of the Boeing X-48B UAV, such as lift and drag forces, in order to better understand the type of flow generated by the aircraft in hopes of improving its performance.

OLIVER WATERS

Super Adiabatic Porous Media Combustion In Porous Media for use in Thermoelectric Power Supply

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

To create an efficient way to convert ultra-lean fuel air mixtures into an electrical current through a porous burner and thermoelectric devices. The burner will be able to run for long periods of time and produce enough current to charge a cellular telephone, portable computer, or other similar electrical devices.

JASON WEISS

Analysis of Wavelet Transmission in Terrestrial and Pelagic Parameters

Mentor: Dr. Ni-Bin Chang (Civil, Environmental, and Construction Engineering)

Using remote data collection and wavelet analysis analyze the relationship between terrestrial parameters and sea surface temperature.

LIFE SCIENCES I

GABRIELLA ALAVA

Chapulines: Phylogeny and Biogeography of a Grasshopper Subfamily Melanoplinae Orthoptera: Acrididae

Mentor: Dr. Hojun Song (Biology)

This research aims to reconstruct a phylogeny of Melanoplinae, based on mitochondrial DNA. We use phylogenetic techniques to test the biogeographical hypotheses on the origin of one of the largest subfamilies in Acrididae.

ARIANA ALBORNOZ

Predicting the Biological Age of a Bloodstain Donor by mRNA Profiling

Mentor: Dr. Jack Ballantyne (Chemistry)

The objective of the current research project is to design assays that can be used to predict the biological age of a sample by identifying age-specific biomarkers.

ADAM ALEXANDER

Profiling Mouse Pancreatic Tumor Cells Using Real-Time Expression Arrays to Determine Relevance to Human Pancreatic Tumor Progression

Mentor: Dr. Deborah Altomare (Biomedical Sciences)

Characterize cell lines derived from pancreatic tumors arising in a genetically predisposed mouse model using quantitative PCR expression analysis to measure relative expression of tumor regulatory genes and oncogenes.

MELYSSA ALLEN

Feeding Ecology of Bottlenose Dolphins in Choctawhatchee and Pensacola Bays

Mentor: Dr. Graham Worthy (Biology)

Putative dolphin prey were collected, homogenized, and further analyzed in order to determine water content, lipid content, and isotopic signatures. These characteristics are used to determine the feeding habits of resident dolphins and possibly interpret whether their feeding ecology has changed due to the effects of the BP oil spill.

ELISSA ASHLEY

Bird's Eye View: Measuring the Success of Oyster Reef Restoration by Observing Wading Bird Usage of Natural and Restored Reefs

Student Co-Authors: Christina Kontos, Gabriel Nickle, Robert Levinthal, Kari Wesighan, Janvid Situ, Jennifer Owen
Mentor: Dr. Linda Walters (Biology)

Usage of restored versus natural oyster reefs by migratory and permanent resident wading birds in Mosquito Lagoon is being examined to further determine the success of conservation efforts to restore oyster beds after their destruction from wakes caused by recreational boats.

ALEXANDRA AYACHE

Amyloid-beta₄₂ Toxicity Reduction in Human Neuroblastoma Cells Using Cholera Toxin B Subunit-Myelin Basic Protein Expressed in Chloroplasts

Mentor: Dr. Henry Daniell (Biomedical Sciences)

The aim of this study is to use plant derived human myelin basic protein fused with cholera toxin B subunit to reduce the neurotoxic effects of amyloid-beta, an accumulated protein involved in Alzheimer's disease pathogenesis, thus leading to feasible oral administration and low-cost treatment for Alzheimer's disease.

MISHAH AZHAR

Evaluation of Tuberculosis Drugs Against *Mycobacterium avium* Subspecies *paratuberculosis* Strains from Crohn's Disease Patients

Mentor: Dr. Saleh Naser (Biomedical Sciences)

The main objective of this study is to evaluate the efficacy of several commonly used anti-tuberculosis drugs against clinical strains of MAP isolated from patients with Crohn's disease.

TYLER BARRETT

Chloroplast Mannanase for Algae Biomass Hydrolysis

Mentor: Dr. Henry Daniell (Biomedical Sciences)

Large-scale production of mannanase expressed in tobacco plants for enhanced hydrolysis of algal biomass to release fermentable sugars for biofuel production.

CHRISTOPHER BRITT

A Computational Approach to Elucidating the Mechanisms of Bacterial Intoxication

Mentors: Dr. Ken Teter and Dr. Michael Taylor (Biomedical Sciences)

The goal of this project was to identify protein disulfide isomerase and heat shock 90 binding sites on the A1 subunit of cholera toxin.

ANNA BUTTERFIELD

Urban Forestry Survey

Mentor: Ms. Alaina Bernard-Kitchings (Landscape and Natural Resources)

The objective of this project is to monitor the trees found on the Orlando campus of the University of Central Florida in order to use the information in future urban forestry development.

KATHERINE CAMACHO FERREIRA

Characterization of Aurora-Related Kinases in *Plasmodium falciparum*

Mentor: Dr. Debopam Chakrabarti (Biomedical Sciences)

The purpose of this study is to perform an in-depth characterization of the Pfar kinases. This will be performed by generating GFP-tagged transfected cell lines and analyzing it through immunoblotting and immunofluorescence assays. The study will provide an understanding of the signaling pathways and molecular mechanisms of the Pfar.

ABIGAIL CARBONELL

Evaluation of Cell-Based Assays to Identify Antimalarial Lead Compounds

Mentor: Dr. Debopam Chakrabarti (Biomedical Sciences)

The goal of this project was to compare a luciferase-based, metabolic method of screening compounds for anti-malarial activity with a DNA-based assay. This metabolic assay was used to identify lead compounds that can be developed as drugs against resistant strains of *Plasmodium falciparum*.

SHARON CARTER

Determining Phylogenetic Relationships of the Papuan Snakes in the Genus *Toxicocalamus*

Mentor: Dr. Christopher Parkinson (Biology)

The New Guinean Venomous Island Snakes in the genus *Toxicocalamus* are small secretive burrowers in the cobra family. Recent studies have had difficulty placing the genus in context with other genera in the family. This study aims to determine the evolutionary relationship within these snakes using mitochondrial gene sequence.

LINH ANH CAT

An Apple Snail a Day Keeps the Plants Away: Effects of an Invasive Snail on Aquatic Plants and Ecosystems

Mentor: Dr. Patrick Bohlen (Biology)

This study focuses on the effects of low, medium, and high densities of nonnative *Pomacea insularum* on the pH, dissolved oxygen, nutrient concentrations, and turbidity of aquatic ecosystems, as well as changes in plant community composition that may lead to the domination of the invasive plant *Hydrilla verticillata*.

MARIA CHAMORRO

Toxin Production in *Clostridium difficile*

Mentor: Dr. William Self (Biomedical Sciences)

Clostridium difficile causes toxin production in antibiotic induced diarrhea. Toxin production is dependent on amino acids in environmental conditions. This study aims to examine the effect of glycine and L-hydroxyproline on toxin production in *C.difficile*.

TALIA CHAVEZ

Functional Inactivation of *Chlamydia trachomatis* Tarp by Dominant Negative Mutations

Mentor: Dr. Travis Jewett (Biomedical Sciences)

Chlamydia trachomatis Tarp is a bacterial protein involved in chlamydial invasion into human cells. In Dr. Jewett's lab, our goal is to generate Tarp mutants that have negative effects on the actin nucleation of the Tarp protein *in-vitro*, in hopes that it will disrupt chlamydial infections *in-vivo*.

PATRICK CHERUBIN

Polyphenolic Compounds of Grape Extract as Potential Inhibitors of Cholera Toxin

Mentor: Dr. Ken Teter (Biomedical Sciences)

My project involved screening different individual polyphenolic compounds of grape extract for cholera toxin inhibition.

MICHAEL CHISUM

Testing the Regenerative Capacity of UCF-MS1: Inducing Proliferation of Endogenous Stem Cell Populations in the Rat Cornea

Mentor: Dr. Sugaya Kiminobu (Biomedical Sciences)

Our group is analyzing the capacity of a compound, UCF-MS1, for its ability to increase endogenous stem cell proliferation in the corneas of rats. We have finished administering the compound to our animal test groups, and are currently using immuno-histochemistry to determine the effect on the tissue.

KEVIN CHOY

Induced Pluripotency of Adult Stem Cells via Overexpression of Nanog

Mentor: Dr. Kiminobu Sugaya (Biomedical Sciences)
To increase potency of adult stem cells via overexpression of embryonic stem cell gene Nanog.

JOHN CLORE

Cytolethal Distending Toxin: How Physiological Conditions of the Endosomes and Endoplasmic Reticulum Affect Holotoxin Disassembly and Toxin Activity

Mentor: Dr. Ken Teter (Biomedical Sciences)
To reveal a potentially new paradigm in how AB toxins are internalized by examining how cytolethal distending toxin is affected by certain physiological conditions in endosomes and the endoplasmic reticulum.

ALISHA COLON

A Novel, Rational Approach to the Treatment of Cell-Mediated Disease

Mentor: Dr. Sean Moore (Biomedical Sciences)
The current use of antimicrobials has pressured microbes to quickly adapt to their environment and survive drug therapies. A novel method of microbial eradication will allow for dynamic approaches that can be applied to medicine. This project aims to evaluate the mechanism of microbial aggression to explore alternatives to antimicrobials.

SHADE CORDERO

Taxonomic Revision and Study of Communication Through Electric Signaling Among Amazonian Fish

Mentor: Dr. William Crampton (Biology)
The objective of the study was the diversity among species of neotropical freshwater fishes and the maintenance of this diversity by analyzing their ability to communicate through electric signaling. The project also involved the taxonomic revision of a few select species of Amazonian fishes.

AVI DAVIS

Beta-Glucosidase, an Interesting Enzyme that Increases Biomass, Confers Protection Against Insects, and Facilitates Biofuel Production

Mentor: Dr. Henry Daniell (Biomedical Sciences)
The motivation for this research is to address the challenges in conversion of biomass to biofuel and to increase biomass, using beta-glucosidase.

CAITLYN DEBEVEC

Testing for Competitive Exclusion Using Temporal Overlap Among Very Different Taxa

Student Co-Author: Christopher Benedict
Mentor: Dr. David Jenkins (Biology)
This project sought to analyze a meta-analysis of insects, fungi, and rotifers in order to gain a better understanding of the relationship between reproductive rate and time for environmental change. The results could have implications in that generation time could be used as a predictable indicator of competitive exclusion.

LIFE SCIENCES II

KELLY DIAMOND

Shake, Rattle, and Run the Gel: Using Morphological and Molecular Data to Study the Evolutionary Relationships of Rattlesnakes

Mentor: Dr. Christopher Parkinson (Biology)
Rattlesnakes are highly venomous and cause numerous snakebites each year. Understanding their relationships is paramount for anti-venom production and drug development. Therefore, we investigated their evolutionary relationships using morphological and molecular data.

CAMILA DIAZ

Mechanisms to Combat HIV Acquisition in the Female Reproductive Tract

Mentor: Dr. Alexander Cole (Biomedical Sciences)
Women represent more than 50 percent of all HIV infections. Since the genital mucosa is the primary site of HIV entry, the female reproductive tract (FRT) plays a crucial role in infection. In this study we will elucidate the protective role of innate and augmented mechanisms of the FRT against HIV acquisition.

LISETTE DOMINGUEZ

Detectable Early Stage Tumor Development and Progression in Pancreatic Tissues Expressing Kras and Akt Oncogenes

Mentor: Dr. Deborah Altomare (Biomedical Sciences)
The objective is to identify early changes in the tissues of mice pre-disposed to pancreatic cancer. Factors like the cell environment may crosstalk with the early pancreatic tumor cells to promote progression. This understanding may ultimately translate to strategies useful for early detection and treatment of human pancreatic cancer.

REMY DORELUS

Apoptosis

Mentor: Dr. Antonis S. Zervos (Biomedical Sciences)
A molecular mechanism used to translocate the BRISC complex from the cytoplasm to the cell nucleus in response to cellular stress.

TAMARA DOWNS

Through Time and Space: Studying the Invasion Patterns of the Charru Mussel

Mentor: Dr. Eric Hoffman (Biology)
This project aims to identify source populations of the nonnative mussel species *Mytella charruana* with respect to populations along the east coast of the United States. A second goal is to analyze the nonnative populations temporally to discern if invasions are ongoing or limited to one event.

MOHAMED EL-MENSHAWI

Proteomic Analysis of Post-Golgi VLDL Transport Vesicle in Rat Primary Hepatocytes

Mentor: Dr. Shadab Siddiqi (Biomedical Sciences)
Proteomic analysis of post-Golgi VLDL (very-low-density lipoproteins) transport vesicle will be carried out to identify proteins regulating their formation and fusion with plasma membrane.

ALEXANDER FAGENSON

Macrocyclic Gold (III) Complexes are DNA Intercalators that Inhibit DNA Topoisomerase I/IIa: Novel Anti-Cancer Agents

Mentor: Dr. Mark Muller (Biomedical Sciences)
Cancer is a billion dollar disease accounting for one in four deaths in the U.S. New drugs with a novel mechanism of action are desperately needed to fight the chemotherapeutic resistance we currently face. The focus of my project is to elucidate the molecular mechanism of gold drugs as anti-cancer agents.

MARLENE FERNANDEZ

Incidence of SNPs in Key Genes in CD Patients and Controls with Respect to *Mycobacterium avium* Subspecies *paratuberculosis* (MAP) Bacteremia

Mentor: Dr. Saleh Naser (Biomedical Sciences)

MAP bacteremia was evaluated in correlation with the occurrence of single nucleotide polymorphisms in key genes (*NOD2*, *ATG16L1*, *IL23R* and *IRGM*) and their variants in CD patients and their relatives.

COURTNEY FRIEDMAN

Toxicity to Aquatic Invertebrates: Comparing the Chemical Effects of Leaves of Invasive *Schinus terebinthifolius* Versus Native Mangroves

Student Co-Authors: Lindsey Vincent, Lydia Crawford, Rosemary Jensen, Sarah Parker

Mentor: Dr. Linda Walters (Biology)

Our goal is to compare the toxic effects of *S. terebinthifolius* seeds and leaves, as well as examine the differences of *S. terebinthifolius* leaves versus native mangrove leaves on aquatic invertebrates in the Indian River lagoon.

STEVEN GOTHAM JR.

Density-Dependent Phenotypic Plasticity in *Schistocerca americana* and *Schistocerca keys* (Orthoptera: Acrididae)

Mentor: Dr. Hojun Song (Biology)

The objective of this research is to quantify the plastic phenotypic differences of *Schistocerca americana* and *Schistocerca keys* between the isolated and the crowded environment conditions. These species are closely related the desert locust and exhibit similar plasticity in response to the density of the environment.

MICHAEL HERNANDEZ

An Analysis of Selenium Toxicity

Mentor: Dr. William Self (Biomedical Sciences)

To analyze the difference in the toxicity of selenium under aerobic and anaerobic conditions and determine if an alternative mechanism of selenium toxicity exists under anaerobic conditions.

JASON HICKSON

When to Judge a Snake by its Cover: Can Morphology Be Used to Identify Salt Marsh Snakes?

Mentor: Dr. Christopher Parkinson (Biology)

There are three subspecies of Salt Marsh Snake in Florida that are described by coloration alone, which has been shown to be an unreliable descriptive measure. Our objective is to establish more informative morphological characters to distinguish the three subspecies.

SEAN HOLMES

Design, Construction, and Characterization of the YSGR Minimal Codon Fab Library for Chaperone-Assisted RNA Crystallography

Mentor: Dr. Jingdong Ye (Chemistry)

The objective of this project is to construct and characterize a protein library in order to isolate antigen binding fragment (Fab) proteins which specifically bind to the glycine riboswitch. The glycine riboswitch is an mRNA component of many bacterial species that has the potential to serve as a novel drug target.

STEPHANIE IGTIBEN

The Effect of Enemy Release on *Eugenia* Species Range Expansion with Climate Change

Student Co-Author: Soren Weber

Mentor: Dr. Betsy VonHolle (Biology)

To study the effect of enemy release hypothesis on *Eugenia* species with climate change. The climate change in northern Florida due to global warming may precipitate novel interactions, thus, in addition to ERH, tropical species may in effect experience range expansion into formerly uninhabitable regions.

NATHANAELLE JOACIN

Oxidative Stress-Induced Apoptosis in the Infarcted Heart is Mediated by PTEN/Akt Pathway

Mentor: Dr. Dinender Singla (Biomedical Sciences)

The objective of this study was to investigate oxidative stress in an infarcted heart and determine whether it is mediated by PTEN/Akt pathway.

JESSICA KENYON

Maintaining Genetic Diversity: Establishing Parentage in a Captive Population

Mentor: Dr. Eric Hoffman (Biology)

I aimed to assign parentage to a captive population of greater flamingos and use these data to provide insight into how to best maintain genetic diversity in closed populations and learn more about flamingo behavior.

OMAR KHAN

DNA-level Evaluation of the Presence of *Mycobacterium avium* Subspecies *paratuberculosis* (MAP) in Biologically and Non-Biologically Linked Family Members

Mentor: Dr. Saleh Naser (Biomedical Sciences)

To examine the incidence of MAP DNA in the blood of IBF patients and their biologically and non-biologically linked family members, both CD-positive and healthy.

JOAN KING

Biological Barriers: Preferential Predation of Invasive Mussels by the Blue Crab *Callinectes sapidus*

Student Co-Authors: Michael Leonard, Chuong Nguyen, Brock Bahlmann, Noemi Rebeli Szabo, William Gerrard, Caitlyn Debevec

Mentor: Dr. Linda Walters (Biology)

The objective of this project is to gain insight into foraging behaviors exhibited by the Florida blue crab *Callinectes sapidus*, and to find any preferential feeding habits toward invasive versus native mussels. This will give a better understanding of potential biological barriers impeding the spread of nonnative mussels.

VICTORIA KREINBRINK

Investigations of the Role of Proteoglycan Core Proteins in Polyamine Transport

Mentor: Dr. Laurie von Kalm (Biology)

We investigated the role of the proteoglycan core proteins, glypican, syndecan, and perlecan in the polyamine transport system.

DANIELLE LANG

Differences in Aquatic Macroinvertebrate Community Structure Between Natural Lentic Systems and Human Made and Managed Lentic Systems

Mentor: Dr. Patrick Bohlen (Biology)

This comparative study will be conducted to better understand anthropogenic impacts on aquatic macroinvertebrate community composition. The comparison will be made between aged, natural lentic systems and young, man-made lentic systems.

NICOLE MALIZIA

Diversity and Effects of Macroalgae on *Crassostrea virginica* in Mosquito Lagoon, Florida

Student Co-Author: Stephany Silva

Mentor: Dr. Linda Walters (Biology)

This project aims to utilize monthly monitoring to determine the relationship between macroalgal species and the eastern oyster *Crassostrea virginica* as macroalgal biomass changes seasonally. Experiments will be developed to determine if macroalgae, including *Ulva lactuca*, have a negative impact on *C. virginica*'s ability to grow, reproduce, and filter water.

ERIKA NAFI-VALENCIA

Hsc70 Regulates the Formation of SNARE-complex Required for VTV-Golgi Fusion

Mentor: Dr. Shadab Siddiqi (Biomedical Sciences)
Our aim is to identify cytosolic proteins that regulate VTV-Golgi fusion and thus VLDL secretion. Controlling VLDL-secretion from the liver would offer a new therapeutic target, which could potentially provide a solution for the formation of plaque in arterial wall.

NATHANIAL NAFZGER

Does Ecosystem Diversity Effect Ecosystem Energetics?

Student Co-Authors: Edward Rysak, Christopher Carvalho-Grimont, John Houder IV
Mentor: Dr. David Jenkins (Biology)
To test the linkage between biodiversity and ecosystem energetics by estimating plant composition and primary productivity in a set of experimental cattle tanks containing constructed ecosystems.

SAMANTHA NELSON

Identification of Body Fluids Using Novel RNA Biomarkers

Mentor: Dr. Jack Ballantyne (Chemistry)
The purpose of this project is to identify novel m/miRNA markers for forensically relevant body fluids to improve the specificity of our existing RNA profiling assays. Novel candidates were tested and a multiplex was developed and validated in order to identify body fluids with minimal loss of sample.

LIFE SCIENCES III

AMBER NIES

Unlocking The Genetic Diversity of Key Deer, *Odocoileus virginianus clavium*

Mentor: Dr. Eric Hoffman (Biology)
Determine the genetic diversity of the endangered Key Deer, *Odocoileus virginianus clavium*, by using 27 microsatellite markers to genotype a random sub-population of 48 individuals.

MELINDA OSBORNE

It's Our Beach and We Want It Now! The Evolutionary History and Conservation Implications of the Atlantic Coast Beach Mouse

Mentor: Dr. Christopher Parkinson (Biology)
The objective of my project is to elucidate the evolutionary history of the threatened and endangered Atlantic coast beach mouse subspecies.

KISHAN PATEL

A Novel Method of Electrically Determining Hydrogen Peroxide Concentrations in Neurons

Mentor: Dr. Yoon-Seong Kim (Biomedical Sciences)
Reactive oxygen species (ROS), such as hydrogen peroxide, have numerous physiological functions in cells. However, they can also cause damage and cell death in high concentrations. The focus of my research is to determine if a novel electrochemical sensor can be used to detect concentrations of hydrogen peroxide in neurons.

GABRIEL PENT

A Novel Genetic System Permits Interrogation of Essential Genes

Mentor: Dr. Sean Moore (Biomedical Sciences)
Current methods for determining function of essential genes and studying gene interactions are technically limited. The objective is to reveal the functions of conserved, essential genes. An unstable plasmid encoding a repressor that targets a duplicate copy of the gene is used to identify the functional elements and interacting partners.

NATHALIE PERDOMO

Nitrated Hsp90 Induces Apoptosis in PC12 cells

Mentors: Dr. Alvaro Estévez, Dr. Maria Franco (Biomedical Sciences)
The overall goal of this project is to reveal that the nitration of Hsp90 by peroxynitrite induces apoptosis in PC12 cells.

MARIO PITA

Compound Activates Neural Stem Cells in the Mouse Brain with Parkinson's Disease

Mentor: Dr. Kiminobu Sugaya (Biomedical Sciences)
This project aims to further develop a potential therapy for Parkinson's Disease (PD). We investigated the effects of a novel compound on the activity of endogenous neural stem cells (NSCs) in an MPTP-induced PD mouse model. Our results suggest this compound may be a promising pharmaceutical to repair neurological deficiencies.

ABDUL RAHIM

Proteomic Analysis of the Very Low Density Lipoprotein (VLDL) Transport Vesicles

Mentor: Dr. Shadab Siddiqi (Biomedical Sciences)
The purpose of this research is to study the proteome of ER-derived very low density lipoprotein (VLDL) transport vesicle, the VTV. Identification of the VTV proteome will provide an important tool to study the biogenesis, maturation and intracellular trafficking of VLDL and lead to therapeutic targets to control VLDL secretion.

KRISTI RAY

The Titan's Curse: Analyzing Genetic Diversity of the Nonnative Titan Acorn Barnacle, *Megabalanus coccopoma*

Mentor: Dr. Eric Hoffman (Biology)
This study focuses on determining population genetic diversity between nonnative populations of the Titan Acorn barnacle, *Megabalanus coccopoma*, from 2010 and 2011 in order to understand how this invasion originated.

SHARANAH RIDORE

Establishment of Ex-Vivo Culture Conditions for Evaluating Metabolic Requirements of Adrenergic-Deficient Embryonic Mouse Hearts

Mentor: Dr. Steven Ebert (Biomedical Sciences)
The objective of this project was to determine the minimal metabolic nutrients required to sustain cardiac function and energy in ex-vivo cultures of adrenergic-deficient and wild-type control hearts.

KELLI RIKE

Quantitation of *Borrelia burgdorferi* Gene Expression During Murine Infection Using an Optimized RT-qPCR Method

Mentor: Dr. Mollie Jewett (Biomedical Sciences)
Analysis of *Borrelia burgdorferi* gene expression during mammalian infection is challenged by the low number of spirochetes present in infected mouse tissues. The goal of this study was to develop an optimized RT-qPCR-based method for sensitive and reproducible quantitation of spirochete genes expressed in vivo.

ERIC RIZZO

Taxonomy of the Weakly Electric Neotropical Knifefish Genus *Microsternarchus* (Gymnotiformes: Hypopomidae)

Mentor: Dr. William Crampton (Biology)

The fish genus *Microsternarchus* currently includes a single species, *Microsternarchus bilineatus*. Specimens obtained from South America indicate the presence of two to three species yet to be defined. The objective of this study is to generate a taxonomic revision of the genus based on geographic variations in morphology.

NELSON RUBERT

The Development of a Novel Experimental Autoimmune Encephalomyelitis in Rats for Future Multiple Sclerosis Therapies

Student Co-Author: Michael Buchko

Mentor: Dr. Kiminobu Sugaya (Biomedical Sciences)

The experimental autoimmune encephalomyelitis (EAE) rodent model is essential in developing therapies for multiple sclerosis (MS). Unfortunately, current EAE models typically use a single target protein producing inaccurate representations of the MS population. A new EAE model that better represents the main population is needed to aid in MS research.

SANTIAGO SALAZAR PAVAJEAU

Differentiation of Peripheral Blood Stem Cells Into Corneal Cells

Mentor: Dr. Kiminobu Sugaya (Biomedical Sciences)

The objective of this experiment is to direct adult stem cells into corneal development. Such a discovery would allow the cure of cornea-related blindness through the regeneration of the cornea after disease or scarring that causes cloudiness in this tissue.

ERIC SAUER

Homeland Improvement: Systematically Correcting Land Cover Data in Florida

Student Co-Authors: Cody Gale, Brandon Barnett

Mentors: Dr. John Weishampel (Biology)

To determine the accuracy of an automated GIS process that systematically corrects land cover errors within the Florida Wildlife Commission maps by "ground truthing" 1,200 randomly selected points within six counties and statistically analyzing and comparing them to the FWC maps and newly generated maps.

MICHAEL SCHRUM

Don't Judge a Salt Marsh Snake by Its Cover

Mentor: Dr. Christopher Parkinson (Biology)

The Salt Marsh Snake is a nonvenomous, semiaquatic species, consisting of three subspecies that are found in coastal Salt Marshes in the southeastern United States. Our research objective is to determine if the Salt Marsh Snake subspecies can be distinguished using the mitochondrial cytochrome-b gene.

LAUREN SMITH

Measuring the Genetic Effects of a Recent Population Bottleneck Of The Keystone Urchin Species, *Diadema antillarum*

Student Co-Author: Sara Bolivar Wagers

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

To examine the impact of the recent bottleneck on current levels of genetic diversity and differentiation by analyzing microsatellite variation from populations of *Diadema antillarum* collected throughout the Caribbean.

SELINA SUTCHU

Development of a *phoA* Gene Fusion Reporter System for Use in the Lyme Disease Spirochete *Borrelia burgdorferi*

Mentor: Dr. Mollie Jewett (Biomedical Sciences)

The purpose of this project is to adapt an alkaline phosphatase reporter system for use in membrane topology studies in *Borrelia burgdorferi*, the bacterial pathogen that causes Lyme disease.

MONICA THOMAS

Screening Systems for the Evolution of ClpX

Student Co-Author: Katherine Taylor

Mentor: Dr. Sean Moore (Biomedical Sciences)

We currently use a bacterial protease as a tool to degrade proteins bearing a peptide "degradation tag" based on amino acid sequences in natural protease substrates. Our objective is to re-evolve it such that it will recognize completely different peptide sequences and ignore the natural sequences it prefers.

SASHA TITTEL

The Benefits of Companion Planting: Experimenting with Okra and Sunflower/Cabbage and Sage

Mentor: Dr. Patrick Bohlen (Biology)

Companion planting was researched at the University of Central Florida's Arboretum to investigate if sunflowers attracted beneficial insects and if sage deterred pest insects to foster greater harvest yield in vegetable weight and length/circumference. Positive results would help promote a greener, cheaper, and less labor-intensive form of gardening.

BRENDA WILLIAMS

The Screening of Marine Compounds to Identify Novel Cancer Chemotherapeutics

Mentor: Dr. Mark Muller (Biomedical Sciences)

To identify homologous recombination or non-homologous end joining double stranded DNA break repair pathway inhibitors from a library of marine compounds.

TYLER WITTMAN

The influence of Female Immune System Activation on Male Sperm Competition in *Drosophila melanogaster*

Mentor: Dr. Kenneth Fedorka (Biology)

To determine whether female immune response has an effect on sperm competition in *Drosophila melanogaster*. I compared the outcome of sperm competition in females that had an immune response between matings. I compared phenotype differences between the two progenies as well as analyzed differences in mating behavior.

TRAVIS WOLFENBERGER

Impact of Nurse Plants on Growth and Retention of *Rhizophora mangle* Seedlings Used in Shoreline Stabilization

Mentor: Dr. Linda Walters (Biology)

Our project examines the impact of the nurse plants *Batis maritima* and *Alicornia perennis* on the growth and retention of the *Rhizophora mangle* used in shoreline stabilization.

PAULA YESPELKIS

Salt And Pepper: The Relationship Between Parental Histories and Germination Success of the Invasive *Schinus molle* in Various Salinities

Student Co-Authors: Brian Curry, Katherine Joseph, Sydney Katz, David Moss

Mentor: Dr. Linda Walters (Biology)

The invasive nature of Brazilian pepper allows it to grow in a range of environments from coastal shorelines to inland. The collection location of Brazilian pepper seeds and its impact on germination success in salt, brackish and fresh water will be examined to determine if parental histories influence success.

BRIAN ALLEN

Theoretical Study of Light Propagation Along a One Dimensional Array of Submicron Nanocubes

Mentor: Dr. Shengli Zou (Chemistry)

Using electrodynamics theory (the discrete dipole approximation method) to investigate how light propagates along a silver or gold a chain of rectangular with a dimension of about one hundred nanometers (nm).

ALESIA ANTOINE

Formation of Giant Vesicles and Morphological Changes at High Pressure

Mentor: Dr. Alfons Schulte (Physics)

Biological cells can significantly alter their shape yet retain their physiological integrity. We prepare giant unilamellar vesicles and employ direct optical imaging to investigate pressure response and conformational changes. We investigate the role of water transport in size changes and compare with other cells such as erythrocytes.

TOBY BOAS

Various Matrix Decomposition Problems and Their Applications

Mentor: Dr. Xin Li (Mathematics)

Matrix decomposition theory is a branch of mathematics known for its applications to other subjects, most notable of which is that of computer vision. This project seeks to improve upon recently emerging matrix decomposition algorithms, as well as investigate several open questions in the field.

CHRISTOPHER CAMPO

The Atmosphere and Orbit of WASP-12b

Mentor: Dr. Joseph Harrington (Physics)

We observed multiple secondary eclipses of the extrasolar planet WASP-12b using the Spitzer Space Telescope. The data allowed us to heavily constrain existing properties of the planet, as well as further characterize its atmospheric composition and orbital elements.

MARIA COLON GOMEZ

Squaraine Dyes for Photovoltaic and Bioimaging Applications

Mentor: Dr. Kevin Belfield (Chemistry)

A squaraine dye is synthesized for organic solar cell development with the goal of providing stable photovoltaic cells with high efficiency and a higher strength compared to inorganic photovoltaic cells. The dye is also tested in silica nanoparticles for evaluation in bioimaging applications to use the dye as a probe.

ROSAYRIE COLON

In-Vitro Cell Death Via Photodynamic Therapy Using a Novel Chemical Compound

Mentors: Dr. Kevin Belfield, Dr. Cicero Yanez (Chemistry)

The objective for this research study was to induce cancer cell death via photodynamic therapy, using a novel chemical compound known as tetraphenylporphyrinesulfonate. The cell line used for the experiments are a type of skin cancer, melanoma, mainly caused by the over-exposure to the sunlight's UV-rays.

ANGELA CROTTY

DFT Study of the Mechanism for Superoxide Dismutation Catalyzed by Aqueous Ceria

Mentor: Dr. Artem Masunov (Chemistry)

The goal is to determine a mechanism for the antioxidant properties of nanoceria at the molecular level using principles calculations. To accomplish it, we select a combined implicit/explicit solvent approach that is both computationally feasible and accurate in description of the thermodynamic properties of aqueous cerium and superoxide species.

EVIANIS CRUZ-MONTANEZ

Observing Atmospheric Tides from a Geostationary Orbit

Mentor: Dr. Richard Eastes (Physics)

This project examines the effects of atmospheric tides in Earth's lower thermosphere. Tides are expected to significantly influence the thermosphere-ionosphere system, which can affect our use of space-based systems such as GPS. An ultraviolet imager will provide a global-scale picture of the changes caused by atmospheric tides.

EMILY DANIELS

Particle Identification in the Compact Muon Solenoid

Student Co-Author: Christopher Frye

Mentor: Dr. Costas Efthimiou (Physics)

We present the particle detection mechanisms in the Compact Muon Solenoid at CERN in a visually aesthetic way to create diverse interest in and awareness of modern advancements in high-energy physics experimentation.

STEVEN DENNIS

Theoretical Investigation of Recombination Dipole Matrix Elements in Atomic Processes

Mentor: Dr. Haripada Saha (Physics)

The recombination dipole matrix elements for Argon ions were calculated using accurate and sophisticated multi-configuration Hartree-Fock methods. These matrix elements are part of the mathematical description of the collision of an electron with an Argon ion, resulting in the emission of extreme ultraviolet radiation, which has experimentally observed local minima.

SEAN DOYLE

Attrition Milling Induced Mechanocatalysis for Biomass-Derived Fuels and Chemicals

Mentor: Dr. Richard Blair (Chemistry)

Kinetic analysis of cellulose depolymerization via mechanocatalytic stirred media milling.

RAMONE ELDEMIRE

Visualization of Focal Adhesion Points on Geometrically Manipulated Cells Using an Efficient Two-Photon Fluorescent Probe

Mentor: Dr. Kevin Belfield (Chemistry)

The objective of this experiment is to visualize Focal Adhesion points on Porcine Aortic Endothelial cells, which are grown on substrata that are a specific geometric structure, using an RGD-integrin targeting complex conjugated to an efficient two-photon fluorescent probe.

ALYSSA FEARS

Synthesis and Measurements of Temperature-Controlled Tissue Phantoms for the Study of Blood Viscoelasticity Using Low Coherence Dynamic Light Scattering

Mentor: Dr. Aristide Dogariu (Physics)

We synthesized a tissue phantom whose microscopic mechanical properties can be easily manipulated to serve as a calibration for our fiber optic-based blood coagulation monitor.

CHRISTOPHER FRYE

Spherical Harmonics in Higher-Dimensional Euclidean Spaces

Mentor: Dr. Costas Efthimiou (Physics)

I created an in-depth, pedagogical monograph on the esoteric subject of spherical harmonics in p dimensions. This review targets undergraduates studying physics or mathematics, to whom this topic was previously inaccessible, but also acts as a useful reference for researchers in theoretical physics and applied mathematics.

ARIEL GERSZUNY

Degradation of Chlorinated Pesticides Using Magnesium and Acidified Alcohol

Mentor: Dr. Cherie Yestrebeky (Chemistry)

Pesticides from a soil sample are identified using gas chromatography. In addition, a degradation method for removing chlorine groups from a family of pesticides is implemented to reduce their toxicity.

SABRINA GHIM

Antimicrobial Studies of Copper Loaded Silica Nano-Particle/Nano-Gel Infused Cotton Fibers for Potential Use in Portable Water Purification Systems

Mentor: Dr. Swadeshmukul Santra (Chemistry)

Approximately one billion people in the world do not have access to safe drinking water and a more cost-effective, but reliable water filtration material is needed. This project aims to determine if copper silica nano-particle/nano-gel infused cotton fiber is an effective material for water filtration in portable systems.

SANTIAGO GUIASOLA

The Semiclassical Limit of The One-Dimensional Focusing Nonlinear Schrodinger Equation for Compactly Supported Initial Data

Mentor: Dr. Alexander Tovbis (Mathematics)

The semiclassical limit of the one-dimensional focusing nonlinear Schrodinger equation (NLS) with compactly supported initial data is studied. We provide a rigorous mathematical description of the NLS-evolution. Algebraic methods of studying the dynamics of this system are developed and the region of gradient catastrophe is explored.

HAFAEEZ HANIFF

A Study of Croconate and Squaraine Derivatives for Aggregate Enhanced Emission and Two-Photon Photophysical Properties

Mentor: Dr. Kevin Belfield (Chemistry)

The focus of this project is to synthesize a series of squaraine dyes and their croconate derivatives, and to study their ability to form aggregates in solution and spin coated PMMA thin films, and to investigate their Two-Photon photophysical properties for possible applications in bioimaging and dye sensitized solar cells.

KASEY HAUGEN

Synthesis and Nonlinear Optical Characterization of a Novel Near-Infrared Emitting Diphenylaminofluorene-Based Aza-BODIPY Dye

Mentor: Dr. Kevin Belfield (Chemistry)

The purpose of this research project is to create specific organic dyes, that will target cancerous tissues in the hopes of allowing for early detection in cancer patients using two-photon fluorescence spectroscopy methods.

NICHOLAS HOWELL

Tilt and Warp of Geometrically Thin Accretion Disks

Mentor: Dr. Michele Montgomery (Physics)

Our objective is to explain the physical representation of the first harmonic, as well as the cause of the hot spot emission in geometrically thin disks in close binary star systems.

PHYSICAL SCIENCES AND MATHEMATICS II

RUSSELL KUPKE

The Mechanochemical Oxidation of Lignin for Biomass-Derived Chemicals

Mentor: Dr. Richard Blair (Chemistry)

To determine the proper catalyst in the depolymerization of lignin into its high-value co-products to help reduce the cost of biofuels.

ASHTON LEE

Detection of Formulation Delivery Through Plant Roots and Foliage

Mentor: Dr. Swadeshmukul Santra (Chemistry)

This ongoing project examines the underlying mechanism of nanoparticle transport through plant roots, stems, and foliage, and how the size, surface functionality, and surface charge of nanoparticles affect how they are transported. NAC (N-acetyl cysteine)-coated silica quantum dots are used with the model system *Hygrophila difformis*.

JIE LIANG

Asymptotic Formulas of Bernstein Polynomials for Discontinuous Functions

Mentor: Dr. Xin Li (Mathematics)

My first objective is to obtain a unified formulation and proof for the asymptotic results of both Telyakovskii and Tonkov. The second objective is to extend these results in the case where the highest derivative of the function is only assumed to be bounded at the point under study.

SCOTT MATTHEWS

Fabricating Sufficient Reduced Graphene Oxide Dispersion for Energy Storage Devices

Mentor: Dr. Lei Zhai (Chemistry)

Green energy applications such as wind turbines and automobiles have a need for energy storage devices with high-energy densities along with the ability to rapidly charge and discharge. This project focuses on fabricating an energy storage device out of reduced graphene oxide and manganese oxide to form a supercapacitor.

NICHOLAS MELE

Mathematical Simulation of Rocket Flight

Mentor: Dr. Costas Efthimiou (Physics)

We attempted to mathematically model the launch of a rocket from different heights in order to determine the feasibility of rocket launches from a tower.

EMILY MOORE

Deoxyribozyme Technology for Visual Detection of Specific Nucleic Acids

Mentor: Dr. Dmitry Kolpashchikov (Chemistry)

Binary deoxyribozyme technology was employed to recognize specific sequences of bacterial rRNA, and upon recognition, release a G peroxidase-like enzyme which oxidizes a colorless substrate into a colored product. This visual assay would aid in detecting multiple strains of bacteria with a simple, efficient, and low-cost test.

JOSELYN MORALES

Mechanisms of Membrane Destabilization by Alzheimer's β -Amyloid Peptide

Mentor: Dr. Suren Tatulian (Physics)

The objective of this project is to demonstrate membrane pore formation by Alzheimer's amyloid beta peptide (β) and to produce an experimentally determined molecular model of membrane pores formed by the peptide, providing a molecular basis for membrane destabilization and neuronal cell damage during Alzheimer's disease.

ANTONIO ORDONEZ

Impact and Ejecta Production in Granular Material at 1-g

Mentor: Dr. Joshua Colwell (Physics)

The aim of this project is to better understand low energy particle collisions. This specific experiment is part of an effort to model an idealized version of low energy collisions in the interplanetary medium and on the surfaces of solar system bodies.

VRAJEN PATEL

Functionalization of Carbon Nanotubes Using Various Methods

Mentor: Dr. Lei Zhai (Chemistry)

Functionalization of carbon nanotubes is done by creating a specific polymer to attach to the carbon nanotube. The polymer was made in a synthesis reaction. The resulting polymer was characterized via gel permeation chromatography and nuclear magnetic resonance. The produced octadecamer was mixed carbon nanotubes. A relationship was observed.

CHRISTOPHER RAMIREZ

Fundamental Study of Polyaniline with Reversible Photoacids

Mentor: Dr. Yi Liao (Chemistry)

This study aims to perform a fundamental study of polyaniline along with reversible photoacids and their performance to improve the conductivity, as well as assure reversibility.

DARNELLE RAMIREZ

Ceria and Polypyrrole Fibers for Biomedical Applications

Mentor: Dr. Lei Zhai (Chemistry)

The objective of this research is to load metal ions into the polymeric fibers for different biomedical applications.

BRANDON REEVES

Chaotic Regimes, Post-Bifurcation Dynamics, and Competitive Modes for a Generalized Double Hopf Normal Form

Mentor: Dr. Roy Choudhury (Mathematics)

We first studied Hopf bifurcations of the double Hopf normal form. Such an analysis is useful, as it permits us to discover the location of limit cycles in the dynamical model. Next in the research, we applied method of competitive modes to verify parameter regimes that exhibit chaotic behavior.

WILL RICHARDSON

Basket Ball Trajectory Analysis

Student Co-Authors: Adam Wearne, Jon Lee

Mentor: Dr. Costas Efthimiou (Physics)

The primary objective of this project was to accurately model a basketball shot as thrown from the three point line. Our analysis allows for the determination of launch parameters that result in a successful trajectory.

ADRIENNE SHOWMAN

Challenges in Selecting Oligosaccharide Binding Antibody Fragments via Phage Display

Mentor: Dr. Jingdong Ye (Chemistry)

The purpose of this project is to select for antibody binding fragments (Fabs) against the target oligosaccharide Globo H. Amidst challenges in selecting for the binding fragment, two types of phage display were used; the streptavidin beads method and the library panning method.

BRADLEY STEMM

Low Energy Impacts In Vacuo

Mentor: Dr. Joshua Colwell (Physics)

I researched low-energy impacts to better understand early planetary formation.

SHANDRICKA STEPHENSON

Application of a Nonparametric Permutation Test for the Analysis of LIBS Spectra of Glass Samples

Mentor: Dr. Michael Sigman (Chemistry)

The objective is to apply a nonparametric permutation statistical test to LIBS spectra of automobile glass samples for discrimination of glass from different windows. The method was developed with known samples and subjected to blind tests.

ADRIAN TATULIAN

Investigation of Excitation and Ionization of Highly Charged Atoms in the Upper Atmosphere

Mentor: Dr. Hari Saha (Physics)

We present a theoretical calculation of electron-impact ionization cross sections of highly-charged carbon atoms. Atomic carbon is one of the most abundant species in the upper atmosphere and hence such calculations have applications in understanding damage to spacecraft at high altitudes.

BRIAN THOMAS

Clique Minors in Graphs with Independence Number Three

Student Co-Author: Evan Weiss

Mentor: Dr. Zixia Song (Mathematics)

We have proved the following theorem: Let G be a graph on n vertices with $\alpha=3$. If G does not contain induced cycles of length 4, 5 or 6, then G contains a clique minor of size $n/3$. We plan to extend this result to a more general case.

KRYSTEN THOMAS

Interactive Web-Based Simulations of Collisional and Gravitational Dynamics

Mentor: Dr. Josh Colwell (Physics)

To address the lack of illustrative learning in classrooms, I have developed a science education tool that will allow students to visually understand key physics concepts. The tool is an interactive web simulation. Students will be able to explore and experiment with the laws of gravity, kinematics, and collisional dynamics.

ROSMERY VICTORIA

Development of Luminescent Ruthenium Complexes for In-vivo Fluorescence Lifetime Imaging (FLIM) of Angiogenesis with the RGD Peptide.

Mentor: Dr. Kevin Belfield (Chemistry)

The project involves the synthesis of a long luminescent lifetime ruthenium complex and its subsequent conjugation to the cyclic peptide RGD. This probe was used for the imaging of both cell and angiogenic vasculature, which could aid in the development of probes for the detection of small cancer tumors.

BRIAN WOODS

Theoretical Investigation of Photo-Ionization Processes with Atoms and Molecules

Mentor: Dr. Hari Saha (Physics)

I am using the multi-configuration Dr. Saha's Hartree-Fock method to investigate the excitation and ionization cross sections of atomic oxygen through photo-ionization with hopes that this can be useful in renewable and sustainable energy research.

SOCIAL SCIENCES I

KELDA ADAMS

Therapeutic Hypothermia and ARDS Following Cardiac Arrest in a 29-Year-Old Recreational Athlete

Mentor: Dr. Kristen Schellhase (Health Professions)

My project is a case study of a patient at Orlando Health who collapsed of a heart attack after playing basketball. The patient had anoxic encephalopathy after the episode and was placed on the hospital's therapeutic hypothermia protocol. My project highlights the unique benefits of his treatment.

SHANNON BAILEY

Needlework Craft Experts and Spatial Ability: An Exploration of Expertise Effects in Mental Rotation, Three-Dimensional Object Development, and Folding Visualization

Mentor: Dr. Valerie Sims (Psychology)

The hypothesis addressed whether expertise in needlework crafts correlates with better performance on spatial ability tests. Participants reported their self-perceived expertise in sewing, knitting, and crocheting. They then performed three spatial ability tests (Ekstrom et al., 1976): paper folding, surface development, and card rotations.

MARIA BALLENSANCHEZ

Spiritual Care Interventions and Quality of Life in Cancer Patients Receiving Palliative Care

Mentor: Dr. Norma Conner (Nursing)

The project objective is to identify spiritual care interventions that nurses can implement to improve quality of life (QOL) in patients with advanced cancer who are receiving palliative care.

JUAN BARREDO

Disputed Knowledge Claims as a Predictor of Environmental Movement Action: The Squeaky Clean Case of Coal

Mentor: Dr. Amy Donley (Sociology)

I have used LexisNexis to conduct a content analysis of *The New York Times*, a major U.S. newspaper, for the qualitative presentation of the "clean coal" movement through the years.

RACHEL BENNETT

Acculturation, Religiosity, and Early Intimate Behavior Among Latinos

Mentor: Dr. Chrysalis Wright (Psychology)

This study is examining acculturation and religiosity on intimate relationships of Latino adolescence. Currently, gendered differences have been found for intimate relationship behaviors and these differences are related to acculturation and family religiosity. This study proposes that intimate relationship behaviors change with each subsequent generation of Latino immigrants.

JERIAN BENWELL-LYBARGER

Eatonville Food Access

Mentor: Dr. Amy Donley (Sociology)

This project analyzes the state of food access in Eatonville, Florida.

MARIA CARRILLO

Computerized Walk-Through Models: Assessing the Role of Dimension and Complexity on Knowledge and Workload

Mentor: Dr. Valerie Sims (Psychology)

Participants viewed two-dimensional or walk-through models of hotel rooms (low complexity) and apartments (high complexity). Participants then answered questions pertaining to the model layout and rated their mental workload. Results show that participants had more knowledge of layout for apartments in the 2D condition and hotel rooms in the 3D condition.

JASON CARVER

The Relationship Between Psychopathy and Sociopolitical Attitudes

Mentor: Mr. Jason Chesnut (Psychology)

The purpose of this research was to explore a possible relationship between levels of psychopathy in individuals and their sociopolitical attitudes (ranging from extremely liberal to extremely conservative on social issues).

KRYSTAL CHRISTOPHER

Race and Cultural Background: An Effect on Perceptions and Attitudes Toward Breastfeeding

Mentor: Dr. Shannon Carter (Sociology)

This research is intended to examine the possible relationship between race and cultural background and its influence on attitudes and perception toward breastfeeding. Participants' responses to surveys were collected and analyzed.

JESSICA COLLIER

An Examination of Parental Education Level, Income, and Distress in Parents of Children With Special Needs

Mentor: Dr. Andrew Daire (Educational and Human Sciences)

This research project will examine the relationships among parental education level, income, relational distress, parental distress, and individual distress in parents of children with special needs.

WILDYA CONDE

Discovering Innovations for Customer Service in the Clinic Through Service Blueprinting

Mentor: Dr. Denver Severt (Hospitality Services)

The project's objective is to map the clinic from a client perspective. The intention behind this project is to develop a deeper understanding and appreciation of the patients' views of their experience at the clinic. This will allow for a better approach to customer service in the clinical setting.

CHRONA CONLEY

Correlates of Misuse, Abuse, and Dependence on Prescription Pain Relievers Among Adolescents

Mentor: Dr. Jason Ford (Sociology)

Demographics and other social variables of adolescent prescription pain killer misuse will be examined in order to define the critical factors that distinguish those who misuse recreationally from those who abuse and become dependent, which will equip rehabilitation professionals with a better understanding of the dynamics of pain reliever dependence.

WILLIAM CROSBY

An Evaluation of Tracheostomy Care Anxiety Relief Through Education and Support (T-CARES)

Mentor: Dr. Mary Lou Sole (Nursing)

The primary objective was to evaluate the effect of T-CARES on the anxiety of caregivers who will be providing home care to patients with a new tracheostomy performed as part of head and neck cancer treatment. The secondary objective is to assess the suctioning competency of caregivers following T-CARES.

BETTY-ANN CYR

The Role of Communication Technology in Adolescent Relationships and Identity Development

Mentor: Dr. Steven Berman (Psychology)

This study explores the relationship between communication technology usage (text messaging, email, instant messaging, and social networking) and adolescent adjustment among 268 high school students. Higher communication technology usage was associated with greater anxiety, depression, identity distress, peer conflict, and insecure romantic attachment style. Implications for adolescent development are discussed.

BRITTNEY DENNIS

Being a Military Brat Helpful or Hinderer? Does Having a Military Household Background Impact One's Ability to Cope with Stress?

Mentor: Dr. Amy Donley (Sociology)

The study sought to find how undergraduates deal with stress taking into account their history of having been a child with a parent or guardian in the military.

NICOLE DICKERSON

Teaching Children with Speech Impairments to Ask Questions Using an iPad

Student Co-Author: Jennifer Arzt

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

A case study approach was employed in this pilot investigation to evaluate an intervention program on the production of inverted yes-no questions (e.g., Is Anne Laughing?) and 'to be' declaratives (Anne Is Laughing.) using an augmentative and alternative communication (AAC) iPad application. Two typically developing children participated in this sub-investigation.

EMILY EDWARDS

An Examination of the Prejudicial Value of Visual Evidence in the Context of a Criminal Court Case

Mentor: Dr. Karen Mottarella (Psychology)

The present study investigated prejudicial value of visual evidence by examining differences in mock jurors' emotions and verdict decisions. Results suggest the potential for graphic visual evidence to significantly impact juror emotionality. When the prejudicial influence of evidence exceeds the probative value, fairness of the court proceedings may be questioned.

ANNA ESKAMANI

Empty Ballot: A Study of Student Voter Apathy at UCF

Mentor: Dr. Maria Santana (Women's Studies)

The objective of this research was two-fold: to determine what factors cause voter apathy within the UCF community and who can we solve the problem of voter apathy among young voters. Through surveys of the student body and two focus groups, we have reached a very unique conclusion.

IDA ESKAMANI

The Impact of Economic Pressures on Youth Civic Involvement

Mentor: Dr. Amy Donley (Sociology)

Youth represent one of the most crucial demographics in the United States. This research aims to examine the relationship between economic pressures and youth civic involvement.

MATTHEW FILIAULT

Transitioning Forensic Anthropology into the Virtual World: The Applications of Visualizing Surface Scan Data of Skeletal Remains

Mentor: Dr. John Schultz (Anthropology)

The objective of this project is to investigate the applications of a NextEngine laser-scanner for forensic anthropology case materials by creating 3D models of human bone. The 3D models provide a superior form of documentation in contrast to traditional photographs, and can also be processed for visualization in court.

JESSICA FRELOW

Public Education in the Reformation of High-Risk Behavior Phenomenon in Adolescents

Mentor: Dr. Roberto Potter (Criminal Justice and Legal Studies)

The structural reformation of public education programs to provide substantial support to high-risk behavior adolescents.

SHAWN GAULDEN

Sacred Changes on Campus: The Effects of Higher Educational Experience on Religiosity and Spirituality, and Resolving Cognitive Dissonance

Mentor: Dr. David Gay (Sociology)

This study examines the effects of higher educational attainment and college experience on students' religiosity and spirituality, and if students adjust their religious and spiritual identity as a way to resolve cognitive dissonance.

SOCIAL SCIENCE II

JESSICA GHERSETICH

Arts Targeted Local Economic Development: Florida Cities with Flair

Mentor: Dr. Christopher Hawkins (Public Administration)
Research investigates the strategies and organization of local economic development targeted at arts. Cultural plans of a sample of Florida cities are analyzed to illustrate the targeted nature of strategies and variation in types of nongovernment organizations and municipal government involved in development and implementation of programs and activities.

GENEE GLASCOE

Do Sociological Risk Factors Moderate the Relationship Between Psychological Distress and Delinquency?

Mentor: Dr. Jason Ford (Sociology)
This research examines the interaction of psychological and sociological factors in the prediction of delinquent behavior.

JENNIFER GONZALEZ

Cognitive Schemas and Treatment Outcomes for Child and Adolescent Sexual Abuse Survivors

Mentor: Dr. Andrew Daire (Educational and Human Sciences)
This research project examined the influence of cognitive schemas, as measured by the *Trauma and Attachment Belief Scale* (TABS) on treatment success, as measured by the *Trauma Symptom Checklist for Children* (TSCC), for victims of child sexual trauma. Clinical and future research implications will be presented.

KATE GRIFFIN

Dividing America?: The Role of 'Division Streets' in Residential Segregation

Mentor: Dr. Amy Donley (Sociology)
The objective of this research is to determine if roadways named 'Division Street' actually divide residences by race. 2010 Census data were spatially analyzed using the database SimplyMap to identify areas that exemplify Division Streets as dividing lines.

MARIE GUALTIERI

Curvy Is the New Thin: College Women's Perception of the Dove Campaign for Real Beauty

Mentor: Dr. Amy Donley (Sociology)
Through conducting focus groups, this study examines the potential conflict between the Dove Campaign for Real Beauty's message of selling beauty products while saying that women should be natural. Because the campaign tries to overturn the thin body ideal, print advertisements from *Axe* were highlighted because Unilever owns both companies.

KATIE HARRISON

Who Started It? Initiation of Code-Switches in the Foreign Language Classroom

Mentor: Dr. Gregory Thompson (Modern Languages and Literatures)
Student and teacher language use in foreign language classrooms are examined to determine the amount, causes, and purposes for which either the foreign language or the native language is used. The study also examines who initiates switches between languages (the students or the teacher) and under what circumstances.

JAMES HERNANDEZ

Internet Addiction Disorder: The Distinction Between Normal and Abnormal Social Networking Behavior

Student Co-Author: Crystal Hicks

Mentor: Mr. Jason Chesnut (Psychology)

This research is expected to identify the distinction between normal and abnormal social networking behavior through the comparative analysis of Kimberly Young's *Internet Addiction Test* and the *Social Networking Behavior Test*. The anticipated results will assist researchers discerning the population struggling with Internet Addiction Disorder.

GARDETTE HUTTON

A Contemporary Update of Oral HPV 2000-2011

Mentor: Dr. Annelise Driscoll (Health Professions)

A literature review of the past decade's HPV-related oral cancer and oral human papilloma virus (HPV) research findings. This study will aid in determining the direction that oral HPV has taken over the past eleven years, what the common factors are, and where the educational goals should be focused.

ADERONKE ILEGBUSI

Evidence of Acid pH and its Impact on the Larynx

Mentor: Dr. Bari Hoffman Ruddy (Communication Sciences and Disorders)

This study investigated the frequency and duration of acid exposure to the upper airways and quantified the impact acid had on the pharynx, larynx, and oral cavity by use of pH monitoring. The results showed the importance of analyzing both quantitative and qualitative data prior to diagnosing patients.

EMMANUEL JACKSON

Blending In: Downplaying Homelessness in Society

Mentor: Dr. Amy Donley (Sociology)

This research explores how homeless men in Sanford, Florida, attempt to hide or downplay their homeless status in order to appear "normal" by domiciled individuals and blend into the greater community. It examines techniques these individuals use to blend in, including clothing choices and their levels of interaction with others.

THERESIA JACKSON

Family Structure Variations In Sexual Behaviors

Mentor: Dr. Chrysalis Wright (Psychology)

The current study is examining the impact of various family structures and sexual behaviors. Thus far, the study has found a difference in sexual behaviors based on family background (e.g., married, divorced, never married, remarried). Part of these differences are explained by music and religiosity.

FALLON KADEL

Female Undergraduate Students and Their Experiences in Biology

Mentor: Dr. Amy Donley (Sociology)

This study examines UCF female biology majors' awareness of gender disparity and measures the impact it has on them. A major emphasis has been placed on increasing women's involvement in STEM disciplines and it is important that we understand how gender disparity affects the career goals of young women.

JACLYN KELLER

Investigating Refugee Children's Fears

Student Co-Authors: Lauren Perez, Francis Jacamo

Mentor: Dr. Judit Szente (Child, Family and Community Sciences)

The objective of this research is to analyze cultural perspectives on children's fear objects and ways of coping.

JESSICA KLEINBERGER**Anxiety, Gender and Illness**

Mentor: Dr. Amy Donley (Department of Sociology)

The purpose of my research was to determine the impact of gender on anxiety levels and the relationship between anxiety and physical illness in a sample of 300 college students.

NICHOLE KRAUSE**Students Awareness of Victim Services**

Mentor: Dr. Amy Donley (Sociology)

Victim Services at the University of Central Florida aims to help individuals who suffer from victimization through various services such as counseling, crisis intervention, and safety planning. The purpose of this study is to measure the awareness and perceptions UCF students have of Victim Services.

CLAUDIA LARTEY**Perceived Barriers of Healthy Eating and Physical Activity amongst Obese African American College Women**

Mentor: Dr. Joe Burden (Child, Family, and Community Sciences)

The objective of our project is to better understand perceived racial disparities in health and fitness by analyzing attitudes of obese African American college women toward engaging in healthy eating and physical activity.

CASEY LINK**Non-Union of a Clavicle Fracture in a Collegiate Baseball Player**

Mentor: Dr. Kristen Schellhase (Health Professions)

The objective of the study was to report a specific case of a non-union clavicle fracture in a collegiate baseball player; investigate the reasons why non-union fractures occur; and why it is important to take special care with repaired fractures due to the possibility of non-unions.

JARED LINK**Ecological Momentary Assessment of Affect, Emotion, and Eating Behavior: Smartphones vs. the Traditional Pen-and-Paper Approach**

Student Co-Author: Alexander Eisenberg

Mentor: Dr. Jeffery Cassisi (Psychology)

Ecological momentary assessment enables users to report affective, emotional, and behavioral states close in spatiotemporal proximity to specific experiences. Reports recorded multiple times daily decrease retrospective recall and reduce memory biases. This study compared touch screen smartphones and the traditional pen-and-paper approach in monitoring affect, emotion, and eating behavior.

ELSSY LOPEZ**Latino Oral Health**

Mentor: Dr. Fernando Rivera (Sociology)

To determine the deficiencies in oral health among the adult Latino population. Trends reviewed can help further explain these problems and aid with future applications in the field.

KEITH LOUDEN**Media Consumption and Political Attitudes of College Students**

Mentor: Dr. Amy Donley (Sociology)

The project objective is to examine whether or not differing media outlets and large amounts of consumption affects college students' attitudes toward the government.

LAURA MABEN-TENNEY**Creating a Greener Health Care Industry Through Reprocessed Single Use Medical Devices**

Mentor: Dr. Victoria Loerzel (Nursing)

Before the implementation of single use devices in medicine, medical equipment was washed and reused. This project examines the impact of single use medical devices on the environment and further explores barriers to the use of recycled single use medical devices as a means to create "greener" hospitals.

RUDY MAHOSKY**Explaining U.S. Aid to Israel**

Mentor: Dr. Thomas Dolan (Political Science)

This study examines the relationship between factors like the Pro-Israel lobby, the ruling party both in the U.S. and in Israel, and explicit U.S. condemnations of Israeli actions on the variation in U.S. annual aid to Israel.

DEIRDRE MANNING**The Perception of the Economic and Social Impact of Renewable Energy in Rural Southwest Nova Scotia**

Mentor: Dr. Penelope Canan (Sociology)

To examine the social and economic factors that allow renewable energy projects to be introduced in rural Southwestern Nova Scotia as well as explore public perceptions that aid and inhibit this technology's implementation, and thus, draw implications for future projects of this nature.

SOCIAL SCIENCES III**MICHELLE MARIOTTI****Using the Storytelling Invention Process to Increase the Communication Skills of Children with Autism**

Mentor: Dr. Glenda Gunter (Teaching, Learning, and Leadership)

The meStory/weStory intervention is a student centered project that uses digital narrative and technological tools to increase student literacy, communication, and social skills. This project focuses specifically on improving communication skills to significantly change the lives of children with autism.

KENDALL MCCOLLOUGH**Determining the Sex of Juvenile Skeletal Remains via Dentition**

Mentor: Dr. Tosha Dupras (Anthropology)

This pilot project aims to establish an accessible and non-destructive method for determining the sex of juvenile remains using deciduous (baby) dentition. This research is focused on the deciduous dentition as it forms early during growth and development. Previous research has demonstrated that secondary (adult) dentition exhibit sexual dimorphism.

KATHERINE MEJIA**Examining Marital Expectations in Low to Moderate Income Married Couples**

Mentor: Dr. Andrew Daire (Educational and Human Sciences)

The objective of this study is to examine what relationships exist among couple congruence in their marital expectations, relationship satisfaction, and relationship dyadic adjustment.

LILIAN MILANES**Health Care Providers' Perspectives on Male Involvement in Sexual and Reproductive Health Care Needs**

Mentor: Dr. Joanna Mishtal (Anthropology)

This study examined the approaches that are used by healthcare providers at the University of Central Florida Student Health Center to educate and involve men and male partners of female patients in their sexual and reproductive health (SRH) care needs in hopes of improving male involvement in SRH.

JACK MILLER**UAV Optics Usability Analysis for Urban Search and Rescue Missions**

Mentor: Dr. Florian Jentsch (Psychology)

We conducted a theoretical usability analysis of different imaging technologies that may be used by various unmanned aerial vehicles to make them more efficient in urban search and rescue missions.

HEIDI MOORE**Authenticity in Relationships**

Student Co-Authors: Gary Moore, Symone Gibson, Marcy Cshuran

Mentor: Dr. Grace White (Psychology)

The primary goal of this study was to measure the relationship between authenticity as a personality trait and its relation to agreement with insincere/untruthful behaviors within a dating relationship. We also examined the relations between authenticity and other important personality traits.

JEREMY MORTENSON**The Effects of Game-Based Adaptation on Learning Outcomes in Educational/Training Games**

Mentor: Dr. Eduardo Salas (Psychology)

I will research the relationships between game difficulty adaptation in a video game and the learning outcomes of declarative knowledge, motivation, and knowledge organization.

TEDDY MOUMOURIS**Examining Change in Relationship Satisfaction Scores for Economically Disadvantaged Couples Participating in Marriage and Relationship Education Workshops**

Mentor: Dr. Andrew Daire (Educational and Human Sciences)

Studies show low-income couples are more vulnerable to relationship stressors. However, research has only recently begun examining effective interventions for low-income couples. Thus, I examined the change between pre- and post- relationship satisfaction scores for economically disadvantaged couples participating in marriage education workshops.

MAXINE NAJLE**Atheists, Devils, and Communists: Attitudes and Stereotypes of Atheists**

Mentor: Dr. Valerie Sims (Psychology)

This project aims to pick out the different elements of common stereotypes about atheists in hopes of illuminating the foundation for the stigma of the label "atheist."

AMIRICA NICHOLSON**The Effects of Mixed-Reality Environments and Individualized Coaching Sessions on the Interview Performance of Students with Disabilities**

Student Co-Author: Daniella Chavez

Mentor: Dr. Eleazar Vasquez (Educational Studies)

This study sought to examine if the use of mixed-reality teaching environments are effective in developing and/or improving the interview skills of individuals with intellectual disabilities. Specifically, the intervention focused on the overt behaviors, verbal communication style, and answer content of the participants.

AUDREY NORMANDIN**Perceptual Constraint and Cognitive Ambiguity in the Nine-Dot Problem: The Gestalt Perspective Reexamined**

Mentor: Dr. Margo Storm (Psychology)

This study addresses the difficulty of the nine-dot problem by focusing on perceptual and cognitive limitations of the problems representation as compared to the shape of the solution. The experiment attempts to achieve higher solution rates with given rules to assist participants with the formation of the solution shape.

CASSIE NORSWORTHY**The Relationship Between Personality Variables and College Student Use of Advising Resources**

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

This study explores the relationship between personality variables and college students' utilization of advising resources. The study looks at the academic locus of control, academic motivation, procrastination, and Big Five Personality factors (Openness, Conscientiousness, Extroversion, Agreeableness, Neuroticism) to help identify types of at-risk students who fail to utilize available advising resources.

ELIZABETH PAEY**SLI and Typical Developing Preschooler's Language Abilities, A Meta-Analysis**

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

A systematic review and meta-analysis was conducted to investigate the difference in language skills of preschool children with Specific Language Impairment (SLI) compared to typical developing peers. Journal articles were gathered from online databases. Studies meeting inclusion criteria were coded and group differences calculated for language differences.

EMILY PILZ**Gender Representation in Elementary Mathematics Textbooks**

Mentor: Dr. Keith Folse (Modern Languages and Literatures)

The study analyzed gender representation in a selection of Florida state-approved, elementary mathematics textbooks. It is a replication of an earlier study (Porreca, 1984), which examined similar issues relating to ESL textbooks. The project objective is to determine the level of variance of gender representation in the selected texts.

CHARLENE POLDEN**International Students' Perceptions of American Students' Use of Electronic Social Communication Devices in the Classroom**

Student Co-Authors: Nicole Knox, Joanna Goldonowicz

Mentor: Dr. Ann Miller (Communication)

The project will explore how international students perceive American student use of electronic social communication devices in the classroom. Three focus groups will be conducted to elicit information from international students to learn about their experiences with and perceptions of American student use of social media in the classroom.

SARAH PRENTICE**The Influence of Auditory Cues and Pointer Speed in Signal Detection Through The Fitts' Law Task**

Mentor: Dr. Daniel McConnell (Psychology)

The study aims to determine whether an auditory cue is necessary for detecting objects instantaneously presented and also if the pointer speed of a mouse influences how humans visually perceive an approaching target.

THERESA PRIVETT**Aerobic Exercise as a Means of Reducing Low Back Pain**

Mentor: Dr. Kristen Schellhase (Health Professions)

The objective of this study was to systematically review randomized controlled trials evaluating the effectiveness of aerobic exercises for reducing low back pain (LBP). LBP has been known to affect about 80 percent of the population. An aerobic exercise program would be a more enjoyable and cost-effective treatment option to pursue.

ERUM QURESHI

A Study on Popular Music and Its Influence on Illicit Drug Use

Mentor: Dr. Chrysalis Wright (Psychology)

This study is examining music and its relation to illegal drug usage. Thus far, a relationship between different music genres and different drugs of choice has been found. This study proposes that frequent exposure to lyrical content, the public image of artists, and music videos promote illegal drug use.

PHILIP RAMSAY

The Effects of Game-Based Assessment on Knowledge and Motivation

Mentor: Dr. Eduardo Salas (Psychology)

Utilizing data from an experiment involving participants playing a computer-based training game, we will research the relationships between assessment presentation and declarative knowledge, knowledge organization, application, and motivation.

ANDREA RANIERI

The Effects of Sports Team Allegiance on Jurors' Perceptions of a Defendant

Mentor: Dr. Janan Smither (Psychology)

Extralegal variables such as attractiveness, gender, and race have been known to affect jurors' perceptions of a defendant. These slight variables can have potentially large effects on trial outcomes. In this study, we explore sports team affiliation as another potential extralegal variable affecting courtroom decisions.

CELISE REMY-LEWIS

Your Face May be Working Against You: An Analysis of the Relationship Between Facial Expressions and Ratings of Intelligence

Student Co-Author: Sarah Wooten

Mentor: Dr. Mustapha Mouloua (Psychology)

This study examined the relationship between perceived attractiveness and intelligence based on facial expressions. Ratings of intelligence and attractiveness of individuals in photographs were extracted and analyzed. Results of this experiment suggest that different facial expressions do have an effect on how intelligent and attractive an individual is perceived to be.

PATRISHA REYNOLDS

Temporal Trends in Grave Marker Attributes: An Analysis of Headstones in Florida

Mentor: Dr. John Schultz (Anthropology)

This research was designed to determine how grave marker attributes have changed over time in north-central, central, and southeast Florida. Through analysis of ten cemeteries, representing the grave markers of more than 1,200 individuals, this research highlighted distinctive temporal and regional variations in grave markers memorializing the dead.

LUCIE RINCHER

Preparing Future Communication Disorders and Sciences Scholars: The UCF McNair Scholars Program

Mentor: Dr. Linda Rosa-Lugo (Communication Sciences and Disorders)

This poster details the experience of one McNair scholar in the communication sciences and disorders undergraduate program. It describes the mentor/scholar relationship and the role of the mentor in guiding research and scholarly activities. The poster highlights the accomplishments of the scholar in preparing for research in language and literacy.

SOCIAL SCIENCES IV

MATTHEW ROBIN

The IRGC and Iran's Economy

Mentor: Dr. Houman Sadri (Political Science)

This project analyzed the extent to which the Iranian Revolutionary Guard Corp (IRGC) controls Iran's economy. I examined the methods used by the IRGC to increase its control in Iran's economy. I examined the effect three independent variables produced on the dependent variable, the IRGC's control of Iran's economy.

CARLOS ROBLES

An Assessment of the Effectiveness of Social Media Marketing Among Members of Generation Y

Mentors: Dr. Carolyn Massiah, Dr. Carlos Valdez (Marketing)

Though used extensively in marketing, the usefulness of social media remains unknown. This research explores the effectiveness of social media on Generation Y consumers. The impact of advertisement types and sources are also examined. This work attempts to provide a greater understanding of the true benefits of social media.

MAX RUBENSTEIN

Technology in a Developing Country: Haiti—The Use of Projectors as Educational Tools in Haitian Literacy Classrooms

Student Co-Author: Jean-Paul Bryant

Mentor: Dr. Edwidge Crevecoeur (Teaching, Learning, and Leadership)

This pilot research study assesses the use of visual technology, a projector, to enhance the teaching-learning process of illiterate adults engaged in literacy acquisition.

RACHEL SEWELL

What is Appealing? Sex and Racial Differences in Perceptions of the Physical Attractiveness of Women

Mentor: Dr. Amy Donley (Sociology)

This research evaluates if the male perception of female beauty differs from the female one and assesses if race influences these perceptions.

NICHOLAS SMITH

Does This Job Make Me Look Old? Theoretical Implications of Age Type on Discrimination

Mentor: Dr. Barbara Fritzsche (Psychology)

This study seeks to determine the extent to which the age-type of jobs is related to real-world discrimination through analyzing a sample of ADEA cases against survey data regarding age-type.

TYLER SMITH

Combat Fatigue: Examining Student Support of U.S. Military Operations in South Asia and the Middle East

Mentor: Dr. Jeffrey Rosky (Criminal Justice and Legal Studies)

Surveys were administered to UCF students in order to determine what affects student's opinions of current events in the Middle East and America's involvement in Middle Eastern affairs.

TREVOR SORBO

Stakeholder Needs for Mobile Commerce in Meetings and Events

Mentor: Dr. James Hogg (Tourism Event and Attractions)
Identify if there is a statistically significant relationship between the mobile commerce needs of the various stakeholders in the event industry. Use the findings to inform researchers and practitioners in the event industry.

BRITTANY SWIGERT

Design Matters: Anthropomorphic and Zoomorphic Design in Children's Toys

Mentor: Dr. Florian Jentsch (Psychology)
I have taken a theoretical approach to the application of anthropomorphic and zoomorphic robot design in child education and entertainment based upon research being done at the Team Performance Laboratory on trust and mental models which users form of a robot in the military.

ALYSSA TANAKA

Relationship Between Music Genre Preference and Levels of Depression

Student Co-Author: Robert Thally
Mentor: Mr. Jason Chesnut (Psychology)
Music genre preferences and depression will be studied in undergraduate students at the University of Central Florida to determine if a relationship between the preference for different genres of music and levels of depression exists.

TRICIA TANG

A Comparative Analysis of College Student Spring Break Destinations: An Empirical Study of Tourism Destination Attributes

Mentor: Dr. Youngsoo Choi (Tourism Event and Attractions)
The aim of this study is to explore the U.S. college student spring break market. Survey results were analyzed via Principal Component Analysis and Importance-Performance Analysis, which helps destination marketing practitioners understand the underlying dimensions of U.S. college student perceptions of key spring break destination attributes.

AUTUMN THOMAS

Botswana: A Nation Under Construction

Mentor: Dr. Karen Biraimah (Teaching, Learning, and Leadership)
The objective of this project was to discover the role of democratic classrooms in nation-building and the challenges of providing high quality educational opportunities for marginalized student populations in Botswana.

ANGELA VANELLA

Investigating the Relationship Between Creativity and Lexical Choice

Mentor: Dr. Shannon Whitten (Psychology)
The purpose of this research is to explore the relationship between creativity and lexical choice. Research by James Pennebaker (2011) established a relationship between word choice and personality factors. The present study will advance that research by adding an objective measure of creativity to the self-report measures used previously.

RAQUEL VELAZQUEZ

The Efficacy of Anti-Psychotic Medications in Treating the Behavioral Problems Associated with Autism Spectrum Disorders in Children and Adolescents

Mentors: Dr. Chad Nye (Communication Sciences and Disorders), Dr. Bernardo Ramirez (Health Management and Informatics)
The objective of the current research project is to conduct a systematic review and meta-analysis to determine the efficacy of anti-psychotic medications in treating the common behavioral problems associated with autism in children and adolescents and to add to the body of knowledge currently available on the topic.

ANGELA VERGARA

Complementary and Alternative Medicine: A Pathway or an Alternative for the Hispanic Community

Mentor: Dr. Fernando Rivera (Sociology)
The objective of this study is to identify the patterns associated in the decision to utilize Complementary and Alternative Medicine (CAM) in the Hispanic community and to assess whether CAM is an alternative to orthodox forms of treatment or a pathway to better mental health for the Hispanic community.

KWAME WALKER

The Effect of Academic Entitlement on Student Perception of Instruction in Mass Sections

Mentor: Dr. Carolyn Massiah (Marketing)
The study explores the sense of entitlement which appears to be prevalent among Generation Y and how that entitlement drives student perception in classwork delivered in technology format. This paper focused on "academic entitlement," a construct that includes expectations of high grades for modest effort and demanding attitudes toward teachers.

AERYEL WILLIAMS

Motivation to Lead: An Interdisciplinary Approach

Mentor: Dr. Germaine Graham (LEAD Scholars)
The leadership motivation of first year college students will be examined and analyzed to determine what strategies, techniques, and theories of marketing are effective in recruiting students to leadership programs such as LEAD Scholars.

SUSAN WILLIAMS

The Relationship Between Prior Charges, Decision and Disposition in Juvenile Justice

Mentor: Dr. Kristina Childs (Criminal Justice and Legal Studies)
A juvenile's number of prior charges, and the severity/type of their current charges, will be analyzed to determine the effect on the judicial decision-making process and the final disposition in Jefferson Parish, Louisiana.

LINDSAY WISEMAN

An Exploration in the Validity and Measurement of Guest Service in Emergency Departments

Mentor: Dr. Denver Severt (Hospitality Services)
The objective of this project is to explore the validity for the measurement of hospitality in emergency departments. Since this is a secondary but vital goal to health care outcomes, there is currently a shortage of valid instruments for measuring the satisfaction of the service delivery of the guest service personnel.

NIKILAUUS WYCHA

Internet Censorship Laws: Piracy, Freedom, and Free Knowledge on the Web

Mentor: Mr. Michael Loree (Sociology)

This project is designed to study the possible causes of the opposition to internet censorship bills such as SOPA and PIPA by Internet-literate students.

NICOLE YELLO

Gender Issues and Equity in 21st Century Children's Picture Books

Mentor: Dr. Elizabeth Hoffman (Teaching, Learning, and Leadership)

The focus of this research is to analyze gender bias and gender equity in children's picture books. The sample consists of 45 Caldecott Award and Honor Medal selections published between 2001-2011.

ERIKA YOUNG

The Influence of Educational Differences on Marital Satisfaction in Low-Income Couples

Mentor: Dr. Andrew Daire (Educational and Human Sciences)

This project will examine the influence of congruence in partner educational level on relationship satisfaction.

ALAN ZEGARRA

Military Failure and Effect on International Relations

Mentor: Dr. Joseph Vasquez (Political Science)

Research was focused on the effects of the Falklands War on Argentina's international relations and foreign policy after a decisive military loss, specifically referring to its negotiations with Chile in the Beagle Channel Dispute.

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

The journal showcases articles of exemplary works from a wide range of student scholarship in all fields. It seeks outstanding research submitted by undergraduate students who have been involved in faculty-mentored research projects and activities related to scholarship.

The journal is on display at www.URJ.ucf.edu.

SASHA BRODSKY

Cold Temperature Effects on Byssal Thread
Production by the Native Mussel *Geukensia demissa*
Versus the Non-Native Mussel *Mytella charruana*
Mentors: Dr. Linda Walters, Dr. Kimberly Schneider,
Dr. Eric Hoffman

LINDSAY DHANANI

How Religiosity Affects Perceptions of
the Homeless
Mentor: Dr. Amy Donley

FAITH DICKENS

“The Guy With the Problem”: Reform Narrative in
Disney’s Beauty and the Beast
Mentor: Dr. Kevin Yee

VANESSA DOMINGUEZ AND MARC GENTZLER

How Perceptual and Cognitive Factors Are Involved
in a Car Accident: A Case Study
Mentor: Dr. Andrew P. Daire

ERIC GOLDSTEIN

Analysis of the Repair of Topoisomerase II
DNA Damage
Mentor: Dr. Mark Muller

LAUREN HANSBURY

In the World But Not of It: Negotiating Evangelical
Tradition and Gendered Identity in Contemporary
Family Life
Mentor: Dr. Harry Coverston

**DIANA C. HERNANDEZ
AND ANDREA Y. RANIERI**

The Backward Masking Red Light Effect and
Schizotypy: The Influence of Sex
Mentor: Dr. Jeffrey S. Bedwell

KYLE REGER

Numerical Solutions to Hall Magnetohydrodynamic
Equations Near an X-Type Magnetic Neutral Line
Mentor: Dr. Bhimsen Shivamoggi

MARIE SABBAGH

Direct and Indirect Influences of Defendant Mental
Illness on Jury Decision-making
Mentor: Dr. Erin Murdoch

**MARIE SABBAGH, TESS HARE,
ERIKA WHEELHOUSE, AND
HOLLY MCFARLAND**

Self-Silencing in Response to Sexist
Behavior: Exploring Women’s Willingness to
Confront Sexism
Mentor: Dr. Erin Murdoch

SHANNAN SHERMAN

Etiology of Community Acquired *Clostridium*
difficile-Associated Disease
Mentor: Dr. Pamela Ark

UNIVERSITY OF CENTRAL FLORIDA LIBRARIES

Annual Award for Outstanding Research Publication in the
UCF Undergraduate Research Journal

UCF Libraries is pleased to announce that

MARIE SABBAGH, TESS HARE, ERIKA WHEELHOUSE, AND HOLLY MCFARLAND,
authors of

Self-Silencing in Response to Sexist Behavior: Exploring Women’s Willingness to Confront Sexism,
have won the 2011 Award.

Congratulations to

Marie Sabbagh, Tess Hare, Erika Wheelhouse, Holly McFarland,
and mentor Dr. Erin Murdoch.

UNDERGRADUATE RESEARCHER OF THE MONTH

In January 2010, the Student Undergraduate Research Council, in collaboration with the Office of Undergraduate Research, developed the Undergraduate Researcher of the Month program. Each month a new student is honored with the award. Students are nominated by an advisor, mentors, or peers. The following are the award recipients for 2011.

JANUARY

JACKIE ESQUIAQUI (Chemistry and Biology)

Probing/Defining the True B/C Interaction for the Aptamer Disruptor Model of the Glycine Riboswitch

Mentor: Dr. Jingdong Ye (Chemistry)

FEBRUARY

CARLY BADER (Biomedical Sciences)

Cholera: Disease Mechanisms

Mentor: Dr. Kenneth Teter (Burnett School of Biomedical Sciences)

MARCH

ELISE HERNANDEZ (Psychology)

Older Adults and Online Social Networking

Mentor: Dr. Janan Smither (Psychology)

APRIL

LAUREN FLAHERTY (Nursing)

Effectiveness of Nonpharmacological Techniques for Procedural Analgesia in the Neonatal Intensive Care Unit

Mentor: Dr. Kelly Allred (Nursing)

MAY

DONEVAN WESTERVELD (Biotechnology and Biomedical Sciences)

Expression and Characterization of CTB-Myelin Basic Protein Fusion Protein in Tobacco Chloroplast

Mentor: Dr. Henry Daniell (Burnett School of Biomedical Sciences)

JUNE

ALLISON MELTON (Theatre)

Costume Designer for "The Chimes," a New Play by Kevin Snipes

Mentor: Ms. Kristina Tollefson (Theatre)

JULY

ANDREW TEBLUM (Biomedical Sciences)

Bimodal Chitosan-PGA Nanoparticles for Drug Delivery Using Layer-by-Layer Assembly

Mentor: Dr. Swadeshmukul Santra (Chemistry)

AUGUST

RENE DIAZ (Mechanical Engineering and Aerospace Engineering)

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

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

SEPTEMBER

MICHELLE MARIOTTI (Communication Sciences and Disorders)

Using the Storytelling Invention Process to Improve the Literacy, Communication, and Social Skills of Children with Autism

Mentor: Dr. Glenda Gunther (School of Teaching, Learning and Leadership)

OCTOBER

ROSS COTTON (Political Science)

The Scottish Parliament and E-Petitioning: Assessing the Use of Information and Communication Technologies to Engage Scots in the Political Process

Mentor: Dr. Bruce Wilson (Political Science)

NOVEMBER

MARLENE FERNANDEZ (Biomedical Sciences)

Identification of Host Genetic Factors Linked to Crohn's Disease

Mentor: Dr. Saleh Naser (Burnett School of Biomedical Sciences)

DECEMBER

KEVIN MERCER (History)

A Hippie Commune as a Countercultural Diaspora

Mentor: Dr. Connie Lester (History)

Nominations can be made at www.our.ucf.edu/accomplishments/urotm/.

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.

Mike Abels	James Hogg	H.G. Parsa
Michael Aldarondo-Jeffries	Peter Jacques	Pedro Patino
Kelly Astro	Jana Jasinski	Charles Perry
Monifa Beverly	Bernie Jensen	Hugh Potter
Amy Bickel	Joo Kim	Tison Pugh
Ratna Chakrabarti	Jennifer Kent-Walsh	Kathleen Rancourt
Niels da Vitoria Lobo	Dmitry Kolpashchikov	Andrew Randall
Jonathan Decker	Stephen Kuebler	Patty Reynolds
Amy Donley	Shawn Lawrence	Michael Rovito
Maysoun Dimachkie	Robb Lindgren	Denver Severt
Martin Dupuis	John Malala	Zixia Song
Costas Efthimiou	Stacey Malaret	Kenneth Teter
Nora Lee Garcia-Velazquez	Lisa Mills	Alberto Villanueva
Michael Georgiopoulos	Abby Milon	Elliot Vittes
William Hanney	Jennifer Mundale	John Walker
Richard Harrison II	Dima Nazzal	Linda Walters
Eric Hoffman	Reid Oetjen	Ze Wang

UCF STUDENT UNDERGRADUATE RESEARCH COUNCIL (SURC)

SURC was formed to promote awareness about undergraduate research for students at the University of Central Florida. Ten students actively engaged in research are selected each year to serve on this council.

Through their support, the Office of Undergraduate Research has greater exposure on campus and continuously receives feedback on undergraduate research programs. SURC's assistance in promoting and running the Showcase of Undergraduate Research Excellence is greatly appreciated.

Linh Anh Cat	Mario Pita	Melissa Robin
Lindsay Dhanani	Patrisha Reynolds	Rachel Sewell
Drew Fedorka	Matt Robin	Raquel Velazquez

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Stands For Opportunity

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