COLUMBUS STATE UNIVERSITY

DR. GREGORY P. DOMIN
GRADUATE CONFERENCE

MANY WAYS OF
KNOWING

NOVEMBER 2 & 3, 2016
CUNNINGHAM CENTER • COLUMBUS, GA

WELCOME

Colleagues and Graduate Students,

I am pleased to be able to welcome you to Columbus State University's sixth annual Gregory P. Domin Graduate Conference, which has as its theme "Many Ways of Knowing". We have representation this year from throughout Georgia as well as from Tennessee and Arkansas.

The conference continues to have a multidisciplinary focus, which is consistent with Dr. Domin's vision for the conference he first developed in 2011. It is our hope that by both naming the conference for him and continuing to grow that vision, we are able to honor his work in promoting graduate studies and student research.

I am very appreciative of the generous support provided by this year's sponsors: Diverse Power, Regions Bank, Kinetic Credit Union, Columbus Chamber of Commerce, the Wade Companies, Columbus Water Works, Geotechnical & Environmental Consultants, Inc., and Waffle House, who was our catering sponsor. Thanks also to the faculty and graduate assistants who are helping with registration and evaluations. I especially want to thank Amber Dees, who coordinates the entire conference and whose work thus makes it possible.

One of the highlights of this year's conference is our first ever Three Minute Thesis® competition. The first round of this exciting competition takes place Wednesday night from 6 – 8:00 p.m. Six competitors will be chosen to advance to the finalist round on Thursday at 1:30 p.m. This is a can't miss event! I hope you are also able to join us Thursday morning for a relaxed continental breakfast at 8:30 a.m. and to hear our Keynote speaker, Dr. Kevin Burgess, during the lunch at 12:00 p.m. Panel presentations begin at 9:00 and continue throughout the day, with poster presentations in the middle.

Finally, thank you for coming to CSU to advance the body of knowledge in your disciplines. I am confident that you will find the panels and poster presentations to be intellectually stimulating. I hope to see you again at the Domin Graduate Conference in 2017!
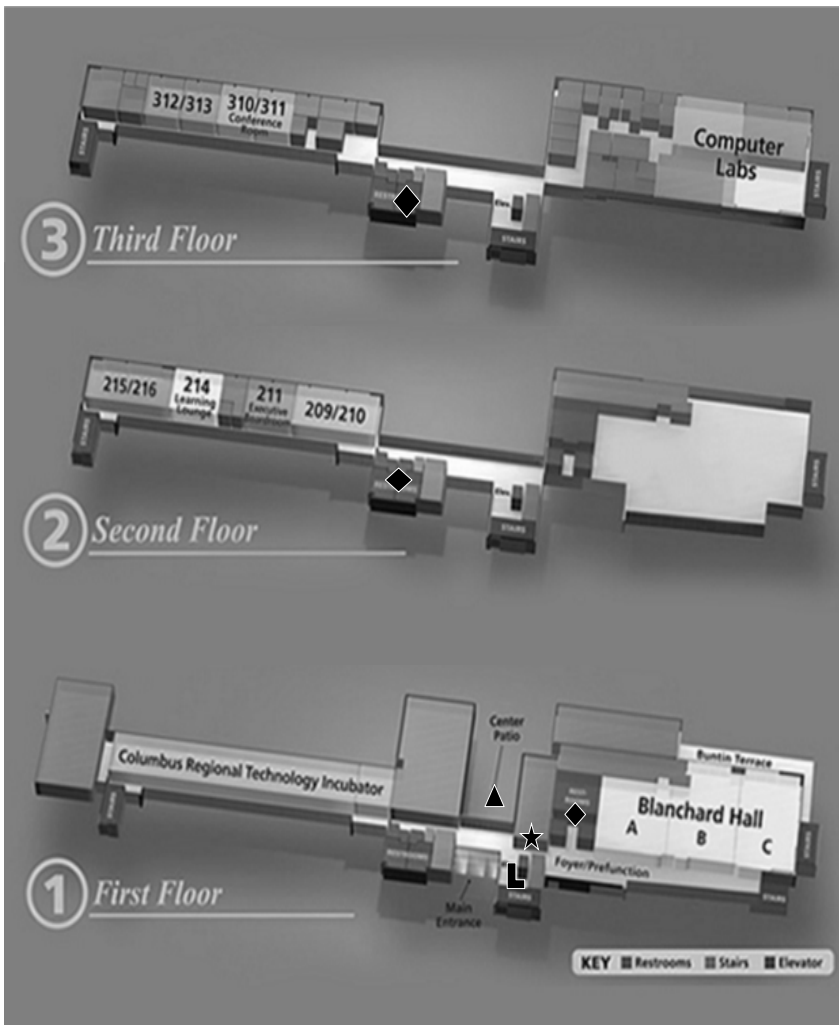
Sincerely,

Ellen Roberts
Associate Provost for Graduate Education & Distance Learning
Director of the Graduate School
Columbus State University

CONTENTS

CUNNINGHAM CONFERENCE CENTER MAP

Key:

★ - Registration Desk
▲ - Patio
L - Elevator/Stairs
◆ - Restrooms

SCHEDULE AT A GLANCE

Wednesday, November 2

3:00 pm	
4:00 pm	
5:00 pm	4:30 – 6p Registration — Registration Desk 5 – 6p Welcome Reception — Foyer & Patio
6:00 pm	6 – 8p 3MT® Competition — Blanchard A
7:00 pm	
8:00 pm	
9:00 pm	

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Thursday, November 3

Time			
8:00 am	8 – 2:30p Registration Registration Desk		
		8:30 – 9 Breakfast	
9:00 am	9 – 10:15 1-A Scholarship on Managing Resources 209/210	9 – 10:15 1-B Discussions in Educational Leadership 215/216	9 – 10:15 1-C A First Look at Diversity 310/311
10:00 am			
	10:30 – 12:00p 2-A Topics in Leadership, Security, and Technology 209/210	10:30 – 12:00p 2-B Analyses of African American Experiences 215/216	10:30 – 12:00p 2-C Education Studies 310/311
11:00 am			
12:00 pm	12:00 – 1:15p Lunch & Keynote Speaker Blanchard C		
1:00 pm			
	1:30 – 2:20p 3MT® Finals Blanchard A		
2:00 pm			

SCHEDULE AT A GLANCE

3:00 pm	2:30 – 4p Multidisciplinary Posters Blanchard B			
4:00 pm		3:30 – 5p 3-A Scholarship Using Technology to Address Health Issues 209/210	3:30 – 5p 3-B Contemporary Issues in Higher Education 215/216	3:30 – 6p 3-C Natural Sciences Research 310/311
5:00 pm				
6:00 pm				
7:00 pm				

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DETAILED CONFERENCE AGENDA

Wednesday, November 2, 2016

4:30 pm – 6:00 pm

PARTICIPANT REGISTRATION

Front Registration Desk

5:00 pm – 6:00 pm

RECEPTION

For conference participants, sponsors, faculty, and guests.

Foyer & Patio

6:00 pm – 8:00 pm

THREE MINUTE THESIS (3MT ®) COMPETITION
Blanchard Hall A

Order of Proceedings

ഔ **Welcome**
Master of Ceremonies – Dr. Ellen Roberts,
Associate Provost for Graduate Education,
Columbus State University

ഔ **Student Presentations – Round 1**

Himaja Sivaraju – Columbus State University

Fuzzy Decision Tree-based Inferencing for Liver Disease Diagnosis

Alysia Logan – Clayton State University

Reclaiming Our Mothers, Reclaiming Ourselves: Africana Women and Voodoo Texts

Javier Livio – Columbus State University

Fuzzy Expert Systems: A More Human-Based Approach for Sensorial Evaluation of Coffee-Bean Attributes to Derive Quality Scoring

Bridget Smith – Columbus State University

Effects of Stress on Hormonal Protection in Astrocytes

Praneetha Mandava – Columbus State University

Towards A Computational Model of Emergent Narrative

Sneha Gogineni – Columbus State University

Building a Stress Monitoring System Using Wearable Sensors and Smartphones

Kerstin Motsch – Columbus State University

Going Green: A Look at Water Quality in Cape Coral Florida

James Kiourtsis – Columbus State University

Expanding the Known Distribution of Cambarus harti to Ensure Conservation of this Endangered Endemic Crayfish

Marissa Granberry – Columbus State University

Cold Tolerance Variation in Introduced Apple Snails Along a Latitudinal Gradient

Caitlin Gallagher – Columbus State University

Effects of Female Condition and Human Disturbance on Allocation of Biliverdin to Eggshells of Eastern Bluebirds (Sialia sialis) Breeding in West-central Georgia

Brandon Furnish – Columbus State University

Effects of Carbon Dioxide on Algae Production in Tertiary Wastewater Treatment Systems

ଛ **10 Minute Break**

ଛ **Student Presentations – Round 2**

Barbara Quintard – Lee University

It's Not Too Late: A Study of Learning Preferences of Low-Literacy Adult Emergent Bilinguals

Savannah Stevens – University of Arkansas at Little Rock

Elements of Fantasy: Cosplay

Robert Lewis – Columbus State University

Autism Speaks to Me!

Jesse Chariton – Columbus State University

Addie Graves (1922-2007) and Lutheran Church Desegregation in Columbus, Georgia

Mengyuan Li – Columbus State University

Effect of Chironomids on Nutrient Removal in Wastewater Algal Treatment Systems

Lauren Whitehurst – Columbus State University

Implementing a DNA Barcoding Pipeline for the Identification and Prevention of Invasive Plant Propagules Entering Ports

Kristin Youngquist – Columbus State University

Benefit Analysis of Trees in Columbus, Georgia

Varonika Hardman – Columbus State University

An Examination of Strategies Used to Improve Retention Rates

   Judge's Deliberations

   Announcement of Finalists

Thursday, November 3, 2016

8:00 am - 2:30 pm

PARTICIPANT REGISTRATION

Front Registration Desk

8:30 am – 9:00 am

CONTINENTAL BREAKFAST AND STUDENT NETWORKING

Foyer

9:00 am – 10:15 am

PANEL SESSION 1

Panels 1-A, B & C running concurrently

1-A   High and Low: Scholarship on Managing Resources

Conference Room 209/210

Panel Chair
Michelle Atcheson – Columbus State University

Discussant
Dr. Sumanth Yenduri – Columbus State University

Presenters

Collin Daly
Electrical Engineering, Georgia Southern University

H.265 Video Traffic Prediction Model Analysis Over Simulated Ethernet Network

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Ananya Nag
Electrical Engineering, Georgia Southern University

Centralized Storage for Distributed Solar System

William Nutt
Public Administration, Valdosta State University

Assessment of Groundwater Resources Field Survey Results Guiuan, Eastern Samar, Philippines

1-A Abstracts

H.265 VIDEO TRAFFIC PREDICTION MODEL ANALYSIS OVER SIMULATED ETHERNET NETWORK

Collin Daly

The Cisco Virtual Networking Index predicts that 80%-90% of internet traffic worldwide will consist of multimedia data by the year 2019, amounting to 1.24-1.44 zettabytes of data annually. Forecasting the amount of bandwidth required during delivery can significantly improve dynamic bandwidth allocation (DBA) techniques used to pass data along Ethernet passive optical networks (EPONs) to recipients. Increasing popularity of ultra-high definition video and high compression ratio encoding standards, such as 4K and H.265, respectively, encourages consumers to request large data files to be delivered over the existing network infrastructure on a more regular basis. This increased demand equates to a higher network throughput which is steadily approaching the limit of the existing physical capacities. To counter this physical limit, bandwidth requirement prediction regulates the flow of data with a more efficient allocation method that reserves a known amount of bandwidth so a bottleneck is not created within the delivery infrastructure for time-sensitive data, such as streaming video. A proposed method of bandwidth prediction is the use of neural networks analyze video transmission bandwidth requirements and provide these values to the optical network controller. Video trace files generated from videos with G24B7 group of picture (GOP) format and H.265 compression algorithm encoding provide the overall sizes of each frame in the video. These trace files are used as inputs to a nonlinear auto-regressive neural

network model, which is trained to provide frame size predictions for each video. The prediction data is encoded as Ethernet network packets and used as inputs to an EPON simulator. Preliminary analysis shows a prediction accuracy of over 90% and a decrease in video delivery delay overall with predictive dynamic bandwidth allocation techniques.

CENTRALIZED STORAGE FOR DISTRIBUTED SOLAR SYSTEM

Ananya Nag

Today's world has the trade-off between cost and clean energy consumption. Renewable energy is one of the greatest source for electrical clean energy as it reduces the consumption of fossil fuel. The intermittent energy sources -solar, hydro and wind provides environmental friendly clean energy. Solar power is one of the great sources for electrical energy generation as it will never run out. But the problem with PV (photovoltaic Voltage) power is that it is not available at night and cloudy weather which necessitates the storage of solar power. The PV power can be stored in storage device so that it can be usable during the unavailability of sunlight and this storage device also can reduce the dependency on the grid power. Now the storage capacity of the battery depends on the load profile and the number of peaks the profile has. So if it is possible to smoothen out the load peaks then the number of batteries will be reduced and that's how it will reduce the cost of storage device. In this paper, a centralized storage for distributed solar system is proposed. In this case study a centralized storage for PV power system has been proposed where aggregation of load profile of sixty different locations have been used which smoothens the load data around their mean peak value and then it has been compared with each individual storage for load profile of each location. From the investigation an interesting result has been observed that shows that the centralized storage system saves the 16.8% utilization of power which reduces the number of batteries and that's how the cost for the storage system will be reduced.

ASSESSMENT OF GROUNDWATER RESOURCES FIELD SURVEY RESULTS GUIUAN, EASTERN SAMAR, PHILIPPINES

William Nutt

DESCRIPTION OF SERVICE UNITED STATES PEACE CORPS RESPONSE PHILIPPINES WILLIAM THURMAN NUTT, JR. MAY 31, 2014 TO DECEMBER 5, 2014 Peace Corps Response Volunteer William Thurman Nutt started his service on May 31, 2014 in the Philippines. Following a ten-day orientation in Manila, he began work with the Local Government in Guiuan, Eastern Samar. William was assigned to the Municipal Planning office, in Guiuan, Eastern Samar as a COMPREHENSIVE ENVIRONMENTAL LAND USE PLANNING AND MAPPING EXPERT. As member of the Guiuan Recovery and Rehabilitation Group created to coordinate response efforts in the wake of Typhoon Yolanda, William was responsible for mapping and assessing the groundwater resources of Guiuan. He participated in the gathering of local environmental data, and provided technical assistance in data processing, analysis, and geo-spatial presentation. In this role, he carried out the following duties: 1. Coordinated the ArcGIS geo-referencing and digitizing the blueprint cadastral survey maps and other printed maps of the 60 barangays to produce an accurate political boundary map. 2. Conducted a comprehensive field survey of 37 Rural Barangays, to assess and map the condition of water resources. Survey included 969 wells and pumps as well as locations and condition of barangay and municipal water system access points. Ecologically sensitive areas and watershed aspects such as zones of vulnerability and recharge areas were also identified and mapped. 3. Assessed the wells and pumps on a 10-point scale to rate the improvement

aspects of water resources, along with a suggested continuous improvement management plan based on international standards. 4. Provided an analysis of the karst groundwater system, sources of freshwater, and saltwater intrusion, taking into account the geological context of Guiuan and Typhoon Yolanda recovery considerations. 5. Assessed threats to watershed and ecological sensitive landscapes affected by Yolanda and provided recommendations relating to the natural forest succession and recovery process. 6. Prepared Barangay specific maps and descriptions of the water resources that summarized the findings and presented to the municipal planning officials of Guiuan a formal report of survey results.

1-B   Innovative Authority: Discussions in Educational Leadership

Conference Room 215/216

Panel Moderator
Dr. Pamela Lemoine – Columbus State University

Presenters

Kelly Rush
Education Leadership, Columbus State University

Leaders' and Teachers' Perceptions of Teacher Evaluation Systems

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Brett Wallace
Education Leadership, Columbus State University

The Effects of School Culture and Climate on Student Achievement

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Tonya Wallace
Education Leadership, Columbus State University

Preparing Assistant Principals to be Resilient Leaders

1-B Abstracts

LEADERS' AND TEACHERS' PERCEPTIONS OF TEACHER
EVALUATION SYSTEMS
Kelly Rush

The researcher proposes to examine leader and teacher perceptions of teacher evaluation systems. Due to the heightened demands of student achievement and growth across the nation, changes to teacher evaluation instruments have been implemented. Many states have placed higher value on student growth than other components that make up a teacher evaluation. Furthermore, more stringent requirements have been put in place regarding the expectations for teacher evaluations, as well as the number of observations conducted each year. As more pressure is thrust upon leaders and teachers to demonstrate greater student achievement and growth, changes continue to be made to teacher evaluation instruments in order to provide students with quality teachers and exceptional teaching.

THE EFFECTS OF SCHOOL CULTURE AND CLIMATE ON STUDENT ACHIEVEMENT
Brett Wallace

Many researchers and theorists contend that paying attention to and improving the school's culture is one of the most important jobs of a principal to increase or sustain high student achievement. Also, research contends that the culture and climate of the school affects student achievement and the school principal directly influences the school's culture and climate, the question that I aim to answer is: what characteristics of school climate should the school principal address in order to most effectively encourage and increase student achievement?

PREPARING ASSISTANT PRINCIPALS TO BE RESILIENT LEADERS
Tonya Wallace

The researcher proposes to examine the changing role of the assistant principal and address the need to prepare them to lead in today's complex educational landscape. Resilient leaders can develop resilient organizations that are able to not only withstand the complex issues they face but grow from facing adversity. Assistant principals must move beyond the school operation and management role in order to lead in a complex educational system that is impacted by interconnecting variables. Without providing effective strategies to build resilience, assistant principals will not be prepared to serve as a resilient leader in their school.

1-C   Roddtable Discussion –

An Immersive Multicultural Experience: A First Look at Diversity

Conference Room 310/311

Panel Moderator
Dr. Michael Baltimore – Columbus State University

Panelists from the Department of Counseling, Foundations, and Leadership at Columbus State University

Jadde Barnes

Tyler Brown

Janae' Carey

Tabria Jackson

Kevin White

1-C Abstract

This presentation is an in-depth overview of an in-the-field multicultural experience from graduate students in a nationally accredited professional counseling program. The panel will present first-hand experiences with cultures other than their own and their personal reflections on the immersive interactions, including participating in Ramadan, a Mexican celebration of the 4th of July and a LGBT community church.

10:15 am – 10:30 am

COFFEE BREAK

Foyer

10:30 am – 12:00 pm

PANEL SESSION 2

Panels 2-A, B & C running concurrently

2-A Mind the Gap: Topics in Leadership, Security, and Technology

Conference Room 209/210

Panel Chair & *Discussant*
Dr. Radhouane Chouchane – Columbus State University

Presenters

Brycent Chatfield
Electrical Engineering, Georgia Southern University

Implementation of an Intrusion Detection System for Physical and MAC Layer Attacks

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Isaac Cushman
Electrical Engineering, Georgia Southern University

Design and Implementation of Private Cloud with Smart Load Balancer and Bandwidth Shaper

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Jeremy Herron
Public Administration, Columbus State University

Combating the Stigma of Mental Healthcare in the U.S. Army's Combat Arms Organizations

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Alexander Stodola
Organizational Leadership, Columbus State University

Closing the Distance: The Role of Technology in Reducing the Impact of Physical Distance on the Practice of Servant Leadership

2-A Abstracts

IMPLEMENTATION OF AN INTRUSION DETECTION SYSTEM FOR
PHYSICAL AND MAC LAYER ATTACKS
Brycent Chatfield

Transformation of the traditional power grid into a smart grid brings about significant improvement in terms of reliability, performance, and manageability. According to NIST, a smart grid is "a modernized grid that enables bidirectional flows of energy and uses two-way communication and control capabilities that will lead to an array of new functionalities and applications." Furthermore, existing communication infrastructures, such as DSL, landline, 4G LTE, Wi-Fi, Zigbee, and Bluetooth, are to represent the backbone of the smart grid's three tier topology: home area networks, neighborhood area networks, and wide area networks.

Increased interconnectivity and integration within the smart grid results in an inheritance of vulnerabilities associated with communication networks. Physical and MAC layer attacks are responsible for Denial of Service (DoS) attacks in the forms of jamming and packet flooding. Also, attacks in these layers extend to MAC spoofing, man in the middle (MITM) attacks, network injection, eavesdropping, and many more. Smart grid vulnerabilities lead to compromisation of customer privacy (address, power usage, personal information) and utility operations (distribution and control).

The study conducted is the design of an intrusion detection system (IDS) by means of received signal strength indicator (RSSI) analysis as a solution for detection of physical and MAC layer attacks in the

smart grid. Introduction of an IDS helps to preserve confidentiality, integrity, and availability (CIA). MATLAB/LabVIEW will be employed for simulation and experimentation of the proposed IDS. Experimental results will be presented for correlation with theoretical analysis.

DESIGN AND IMPLEMENTATION OF PRIVATE CLOUD WITH
SMART LOAD BALANCER AND BANDWIDTH SHAPER

Isaac Cushman

Advancements in the ability for society to communicate has drastically expanded and is growing even faster. This has brought a dramatic increase in the consumption rate of data per individual either by online storage, social media or video streaming. While this impact on society is generally considered good, the new challenges for engineering and information technology solutions becomes very complex. In order to fill the order of such large demands, many new ideas are leaning toward the idea called Internet of Things, IoT, meaning the ability for ordinary devices, such as vehicles or houses, to be equipped with networking devices. From this, come two specific systems that are being abundantly researched currently in engineering are vehicular ad hoc networks and smart grid power systems. Although two very different systems, there is a shared issue common to them and many other current engineering solutions, the problem of adding a security measure to a system that was not initially designed for the need of one; and issue requiring the design from both engineers and information technology specialists. In many cases, there is a tradeoff between the level of security in a system and the quick response the user will be able to have. In many new innovations, cloud networks are being proposed as a way to offer software to very large networks. One of the problems that exists within large cloud networks is the ability to handle high amounts of user requests without bottlenecking at the expense of lower cloud security. This project focuses on the promotion of

collaborated research between the electrical engineering and information technology departments at Georgia Southern University in order to design a private cloud with a smart load balancer and bandwidth shaper to generate a new solution to these large networked systems to operate more securely and efficiently.

COMBATING THE STIGMA OF MENTAL HEALTHCARE IN THE U.S. ARMY'S COMBAT ARMS ORGANIZATIONS
Jeremy Herron

A new culture of warriors emerged from the ashes of the World Trade Center following the September 11, 2001 terrorist attacks. Immediately and unknowingly, young men and women throughout the country joined the ranks of the United States Military to enthrall themselves into a battle that would claim almost 7,000 service member's lives, injuring over 50,000 service members and last more than a decade; longer than any American conflict in history. Immediately following the commencement of this brutal multi-faceted war on terror, an upward trend in suicides among service members emerged (Kuehn, 2009, 2010). By 2008, military suicides reached an unprecedented level, surpassing the civilian rate and reaching a level of more than 20 suicides per 100,000 soldiers in the United States Army alone (Kuehn, 2009). This phenomenon has increased the importance to study the driving force behind the loss of individuals who willingly laid their lives on the line for their country. Coincidently, the stigma of mental healthcare, rampant in most military units, has become more prevalent despite the increase of evidential need for extended mental healthcare services. The dissection of the driving force behind the stigma of mental healthcare in the United States Military has also been increasingly important due to inflating healthcare costs, ongoing draw-down of the Armed Forces, and looming Veteran Affairs scandals regarding lack of treatment. The following research design will intertwine concepts of institutionalization and mental healthcare stigmatization in relations to military culture and

leadership. The purpose of this research design is to review the vast literature regarding the organizational cultural effects on the stigma of mental healthcare, and to propose a longitudinal quantitative study. The study will dissect the strength of the relationship between an U.S. Army, Combat Arms unit's stigma of mental healthcare and the unit's command climate. Additionally, this research design will optimistically incite supplementary studies which help increase the understanding of the grave importance of the military's leadership role in increasing individual soldier hardiness and resilience in combat units. The ultimate goal of this work is to assist in constructing mentally strong individuals and to invest in their mental strength beyond their military service obligation. Though the burden of war is heavy, leaders owe it to United States Service Members and their families to help denounce the social stigmatization of mental illness to increase resilience, hardiness, and unit readiness.

CLOSING THE DISTANCE: THE ROLE OF TECHNOLOGY IN
REDUCING THE IMPACT OF PHYSICAL DISTANCE ON THE
PRACTICE OF SERVANT LEADERSHIP

Alexander Stodola
Co-author – Daniel Kurber

In this presentation, the authors intend to show a new conceptual model of servant leadership regarding the negative impact that physical distance has on organizational effectiveness and how modern technology can mitigate this impact. Physical distance greatly impedes a leader's ability to practice servant leadership. Dispersion reduces the ability to spontaneously and informally communicate, hinders trust and cooperation building, inhibits visible modeling, restricts a sense of community, and negatively affects the ability to serve and provide emotional healing. Modern technology, with its ability to improve the frequency and quality of interaction between the servant leader and their followers, helps reduce, but not completely eliminate, the negative impact of physical distance. The authors, therefore, propose a new model that explains these relationships.

2-B Where We've Been, Where We're Going: Analyses of African American Experiences

Conference Room 215/216

Panel Chair
Nathaniel Maddox – Savannah State University

Discussant
Dr. Sarah Bowman – Columbus State University

Presenters

Jesse Chariton
History & Geography, Columbus State University

One in Faith: Lutheran Church Integration and Desegregation in Columbus, Georgia

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Alysia Logan
Liberal Studies, Clayton State University

Reclaiming Our Mothers, Reclaiming Ourselves: Africana Women and Voodoo Texts

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Ashley Meadows
History & Geography, Columbus State University

Dear Miss Frazier: A Southern Black Woman's Experience in The Labor Market of World War II Mobile, AL

2-B Abstracts

ONE IN FAITH: LUTHERAN CHURCH INTEGRATION AND DESEGREGATION IN COLUMBUS, GEORGIA
Jesse Chariton

Race and religion have long been an interesting pair of topics for historians and scholars of other disciplines (sociologists, anthropologists, etc.). The specific issue of black Lutherans, however, has been only lightly touched upon, even though blacks comprise the largest minority within the Lutheran church in America. The Lutheran Church – Missouri Synod in 1956 enacted a policy to integrate their congregations. Following the 1964 Civil Rights Act, the LCMS adopted a resolution incorporating the section "Establishment of Congregations on a Nonsegregated Basis." However, the story of the desegregation of the Lutheran church in the American South has still not been adequately told, and the issue of race relations in Lutheran churches not fully examined. In Columbus, Georgia, this is an untold story. My research will address the issues of race, identity, class, and gender, while focusing on the Lutheran churches established in Columbus, Georgia during the 20th century. I will examine local church records and plan to conduct oral history interviews of older Lutherans in the Columbus area, particularly members of Bethlehem Lutheran Church, which was established in 1964 and still has a primarily black membership. I will also utilize primary sources housed at the Columbus State University Archives and the Columbus Black History Museum, as well as other regional depositories, with the aim of assembling a narrative and filling in the gaps. Hopefully, this

will lead to a detailed addition to the broader story of religion in the South, and also facilitate more theoretical research on Civil Rights era Columbus. In the end this project, by closely examining primary documents and witnesses' stories, will shed new light on the neglected issue of Black Lutherans in Columbus, thus adding to the broader scholarly discussion about the intersection of race, religion, and society.

RECLAIMING OUR MOTHERS, RECLAIMING OURSELVES:
AFRICANA WOMEN AND VOODOO TEXTS
Alysia Logan

"It is fatal to love a God who does not love you...We have been beggars at the table of a religion that sanctioned our destruction...I maintain that we are empty, lonely without our pagan-heathen ancestors; that we must lively them up within ourselves, and begin to see them as whole and necessary and correct," Alice Walker states in Anything We Love Can Be Saved: A Writer's Activism (25). By choosing to write about voodoo through telling the stories of conjure women like Naylor does in Mama Day and Nunez in Beyond the Limbo Silence, Africana women writers reclaim the religions of their mothers and grandmothers, repossessing their African roots and spiritual power in the process of this ancestral remembrance. I will attempt to prove in my paper that Africana women write about voodoo and other West African derived religions in order to free themselves of the oppressive and hierarchical veil of Christianity and the white oppressors' use of the religious doctrine that has influenced the religious subjugation and cultural disempowerment of Africana women, men and children for generations. These writers empower both themselves and their female readers by using women as their main characters, who can also be seen as interpretations for various paths of lwas/orishas. By continuing to worship the African gods of the Diaspora through their writings, Africana womanist writers free their mothers and themselves from the pain and fear of the past by replacing negative connotations of their ancestral deities with a sense of pride and reverence that can only come by looking through a mother's

mirror. Individually and collectively, these novels have the ability to alter the thoughts of anyone who identifies with them. Because of this awesome commonality, these texts help to shape the identity and fortify the Africana woman's sense of self thus empowering lineages through this genre of narratives. Africana women writing and reading voodoo literature is not only a classic case of descendants resurrecting the stories of their elders to acknowledge where they are from and where they're going; it is also an answer to the call of collective ancestral memory that claims reverence for their mothers, purpose for their daughters, and a name for themselves.

DEAR MISS FRAZIER: A SOUTHERN BLACK WOMAN'S EXPERIENCE IN THE LABOR MARKET OF WORLD WAR II MOBILE, AL

Ashley Meadows

Scholars tend to focus on discrimination in labor in regards to the larger history of African American civil rights or women's rights studies. Branch believes that the experiences in labor struggles for black women were incredibly different from their black male or white female counterparts. She states that even though black woman shared blackness with the black man and womanhood with white woman, being both black and a woman produces an entirely different story. Being doubly marginalized created an experience in the labor market that was ultimately more hostile and difficult to overcome. Historians have sought to bring specific attention to black women's labor, there is surprisingly little scholarship that furthers their discussions. Files that are available at the National Archives in Atlanta, GA from the War Manpower Commission on discrimination cases brings light to this discussion of women's labor experiences. This paper will add to what historians such as Jacqueline Jones, Enobong Branch, Laurie Green, and Donna L. Franklin have already contributed to the historiography of intersectional history. World War II, the South, and black women are all identifiably unique experiences in their own respect. The combination of time period, geography, and demographic, provides a different and unique perspective on the experience of black women involved in labor struggles. The case study will focus on experiences of black women in the state of Alabama.

2-C   Learning Curve: Education Studies

Conference Room 310/311

Panel Chair & Discussant
Dr. Tom Hackett – Columbus State University

Presenters

Shermaine Johnson
Social Work, Savannah State University

Family Relations and Career Aspirations

Andrew Potter
Educational Psychology, Special Education, and Communication
Disorders, Georgia State University

Effects of Self-Regulated Strategy Development on Summary Writing

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Barbara Quintard
Graduate Education/TESOL, Lee University

*What Are My Strengths? A Study of the Learning Styles of Adult
English Language Learners*

2-C Abstracts

FAMILY RELATIONS AND CAREER ASPIRATIONS
Shermaine Johnson

Research on career development has provided information on the influence of family contextual factors, such as socioeconomic status, that are associated with career development, yet it is unclear how the relationships within the family facilitate or inhibit successful career development (Rebecca June-Schapeler Bergen, 2006). This research explores the relationship between family relations and career aspirations of college going students with an undergraduate classification. The initial hypothesis was students who have higher family relations are more likely to have higher career aspirations than those who have lower family relations. However, after conducting research it has been proven that family relations does not affect career aspirations, but the measurements of classification with career aspiration were significant as well as family relation with career aspirations. Additional findings were single parent household students had higher career aspirations in comparison to two parent households, and senior and juniors had higher career aspirations in comparison to sophomore and freshmen. This study uses a 19 item questionnaire, along with demographics to have a more concise reading for results. The sample of convenience will be administered to the Savannah State University students. The data was analyzed using IBM SPSS Statistical package. After obtaining the findings of this project, life enrichment interventions recommendations has been sent to professors who have freshmen and sophomores as students.

Rebecca June-Schapeler Bergen, B.A., M.A.

EFFECTS OF SELF-REGULATED STRATEGY DEVELOPMENT ON SUMMARY WRITING

Andrew Potter

Students are required to write in nearly every subject throughout their academic careers. Writing is a critical and demanding task, yet the National Assessment of Academic Progress (NAEP) – also known as "America's Report Card," results reveal nationwide achievement deficits in writing. Moreover, current educational policy goals created by the Common Core State Standards underscore writing skills by asking elementary students to write analytical essays in response to reading informational texts. Further research on blending reading and writing instruction is needed to address achievement deficits, to meet policy goals, and to leverage writing as a learning tool. The present study utilized a single-case multiple baseline across participants design to determine if students improved their summary writing of opinion news articles after receiving a blended reading and writing intervention. Participants included 12 fifth grade students who were rated as either struggling or average readers and writers. The research was conducted in a Title I school in a large urban school district. Three teachers learned and taught a summary writing strategy intervention using the Self-Regulated Strategy Development (SRSD) framework. Student summary scores were measured by researcher-created analytical rubrics. Phase changes between baseline, intervention, and posttest were used. Teachers implemented the writing lessons with fidelity after a 2-hour one-on-one professional development session using components of Practice Based Professional Development (PBPD). Prior research

results combining SRSD writing instruction with PBPD for elementary-aged students yielded positive results. Researchers attempted to build on prior research by (a) focusing on connecting reading and writing instruction through student summary writing of opinion articles and by (b) evaluating PBPD after a short in-service professional development. Results indicated that all students increased their mean writing scores from baseline to posttest. According to Percent of Non-Overlapping Data (PND), the intervention was highly effective for four students, minimally effective for five students, and not effective for three students. Both teachers and students rated the intervention as socially valid.

WHAT ARE MY STRENGTHS? A STUDY OF THE LEARNING STYLES OF ADULT ENGLISH LANGUAGE LEARNERS

Barbara Quintard

Little research exists focusing specifically on the demographic of low-literacy adult emergent bilinguals, yet this demographic is considered to be one of the most vulnerable ESL student populations. Often, a lack of native language literacy results in these students stagnating in beginning level ESL classrooms with little hope of advancement. This researcher intends to determine the learning preferences of adult students enrolled in an English language course in order to encourage autonomy in these students and shed light on their strengths for the consideration of educators. Lukes (2011) states "that immigrant adult learners with limited schooling and low literacy are least likely to be successful in traditional ESL programs" (p. 22). Nonliterate and semiliterate adult ELLs with little formal schooling "may be considered among the most vulnerable second language learners" (Lukes, 2011, p. 20). Tindall and Nisbet (2010) claim it is possible to teach strategies used by native speakers to emergent bilinguals if modifications are made based on their specific needs, but "many ESL practitioners have not been adequately prepared to meet the challenge of teaching beginning reading skills to adults" (p. 1). Many adult ESL students have low literacy proficiencies not only in English but also in their native language, and certification courses for Teachers of English to Speakers of Other Languages (TESOL) "do not emphasize literacy instruction for adult second language learners" (Tindall & Nisbet, 2010, p. 1). Therefore, adult ESL students in beginning literacy classes may need specialized literacy instruction for which

their teachers are unprepared. In this writer's opinion, asking these adult students who may be intimidated by a formal classroom setting about their learning preferences is a way to establish trust as well as familiarize them with their potential strengths. Reid (1987) measured the learning preferences of university students enrolled in intensive ESL programs and found that these students spent much of their time adapting to a new learning situation or an educational model with which they were unfamiliar. Considering these findings, "identifying the learning style preferences of nonnative speakers (NNSs) may have wide-ranging implications in the areas of curriculum design, materials development, student orientation, and teacher training" (Reid, 1987, p. 88). Educators who understand the learning styles of their students could better differentiate instruction, and students who understand how they learn could take more ownership of their learning.

12:00 pm – 1:15 pm

LUNCH & KEYNOTE SPEAKER

Blanchard C

Keynote Speaker

Speaker Introduction – Dr. Dennis Rome, Dean of the College of Letters and Sciences

Dr. Kevin Burgess

Exploring Many Ways of Knowing Through DNA Barcoding: A Journey of Graduate Student Research from The Himalayan Mountains of China to the Amazonian Rainforest of Ecuador.

Dr. Kevin S. Burgess, a member of Columbus State University faculty since 2008, is an Associate Professor in the Department of Biology. He received his Ph. D. from the University of Guelph in Canada and has held Post-Doctoral Fellowships at the University of Virginia and the University of Toronto.

Since arriving at CSU, he has published 12 peer-reviewed journal articles in high-impact, international journals and has mentored 14 graduate research theses and 20 undergraduate research projects. He has established a vigorous international research program in pure and applied Ecological Genetics that includes research projects in seven countries, in additional to numerous regional research collaborations. Dr. Burgess has co-presented at more than 50 international and regional meetings and has been invited to give seminars at UGA, Emory, NGCSU, GSU and Auburn University – where he now holds an Adjunct position. He has written and received numerous internal and external grants to fund his research program and serves as a reviewer for 14 international journals. His involvement in cutting edge research on DNA

barcoding has received local, national and international media attention and has been featured on the Board of Regents website. Dr. Burgess strives to involve his graduate, honors and undergraduate research students in all aspects of scholarship including writing and receiving grants, data analysis and publishing, conference presentations, teaching and mentoring.

1:15 pm – 1:30 pm

COFFEE BREAK

Foyer

1:30 pm – 2:20 pm

THREE MINUTE THESIS® COMPETITION – FINALIST ROUND

Blanchard A

Order of Proceedings

- ❧ **Welcome**
  Master of Ceremonies – Dr. Ellen Roberts, Associate Provost for Graduate Education, Columbus State University

- ❧ **Student Presentations**
  The six finalists announced Wednesday night will compete for the overall Winner, First Runner Up, and People's Choice awards.

- ❧ **Judge's Deliberations**

- ❧ **People's Choice Award Audience Voting**

- ❧ **Announcement of Winners**

2:20 pm – 2:30 pm

COFFEE BREAK

Foyer

2:30 pm – 4:00 pm

MULTIDISCIPLINARY POSTER PRESENTATIONS

Blanchard B

Presenters

Jeremy Ackles
Public Administration, Columbus State University

Law Enforcement Reform

Michelle Atcheson
Teacher Education, Columbus State University

Strategies for Differentiating Literacy across the Curriculum

Duane Burton
Social Work, Savannah State University

Homelessness and its Impact on Religious and Spiritual Beliefs

Rose Dennis
School of Nursing, Columbus State University

Effectively Educating the Nurse on Chronic Obstructive Pulmonary Disease Education

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Jacquelyn Ferguson
Social Work, Savannah State University

Applying Mindfulness Meditation as a Stress Relieving Method

Sneha Gogineni
TSYS School of Computer Science, Columbus State University

Building a Stress Monitoring System Using Wearable Sensors and Smartphones

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Marissa Granberry
Biology, Columbus State University

Cold Tolerance Variation in Introduced Apple Snails Along a Latitudinal Gradient

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Scott Griffith
TSYS School of Computer Science, Columbus State University

Bystander Privacy

Nekesha Johnson
Social Work, Savannah State University

Sexual Expression in Later Adulthood

Damarcus Lewis
Biology, Columbus State University

Barcoding the Vegetation of Longleaf Pine Savanna

Javier Livio
TSYS School of Computer Science, Columbus State University

AI.Cupper, Artificial Intelligence Coffee Judge(Cupper)

Nathaniel Maddox, Kari West & Ashley Howard
Social Work, Savannah State University

The Significance of Learned Social Attachments for Life Satisfaction Among Gender Nonconforming College Students

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Praneetha Mandava
TSYS School of Computer Science, Columbus State University

Towards A Computational Model of Emergent Narrative

Mary Petermann
Counseling, Foundations, and Leadership, Columbus State University

Comparison of Clinical Mental Health Counseling Training and Procedures in the United Kingdom and United States

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Cristian Rodriguez
Social Work, Savannah State University

Does the Stigma of Hospice Deter Patients from being Admitted to a Hospice?

Lori Seymore-Williams
Social Work, Savannah State University

Does Knowing Your HIV Status Determine Your Generalized Level of Contentment?

Joy Smalls
Social Work, Savannah State University

Job Characteristics Study

Savannah Stevens
Psychology, University of Arkansas at Little Rock

Elements of Fantasy: Cosplay

Ashley Turner
Biology, Columbus State University

Use of Methylobacterium as a Possible Protection Against Pathogenic Infection in Crimson Clover

Nikesha Wofford & Tamekia Richardson
Social Work, Savannah State University

Fear vs. Assurance: Safety on Campus

Poster Abstracts

LAW ENFORCEMENT REFORM
Jeremy Ackles

Law enforcement has been a trending topic for the past few years due to cases where citizens, most commonly African Americans, have been discriminated against, subjecting them to illegal stops, arrest for petty offenses, and excessive force where some have resulted in fatal deaths. The need for law enforcement investigation and reform has been an issue since before the 1991 case of Rodney King, an African American male who was beaten by police after being stopped for speeding. However, in today's society, the growth of technology has played a role in public opinion of law enforcement which has made it a trending issue because the fast spread of information, and there has been numerous videos that have gone viral where law enforcement officers are shooting or mistreating people, specifically minorities. This technology has made more visible to the public the negative practices of law enforcement and in turn has tarnished the reputation and trust from citizens that they are supposed to protect and serve. With this happening all over the United States it raises the question of is law enforcement across the United States properly trained on diversity and has law enforcement fostered a culture of bias against African Americans. One of the most recent episodes of adverse law enforcement happened on April 12, 2015 in Baltimore, Maryland where Freddie Gray Jr., a 25-year- old African American male, was killed due to unlawful and unnecessary use of force by 6 police officers. Gray's death also went viral and caught nationwide attention resulting in civil chaos and protest. This situation

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questions the training of law enforcement and specifically excessive force training which is essential when avoiding occurrences of this nature. This occurrence gained national attention and resulted in civil turbulence and violent and non-violent protest because citizens felt that law enforcement racially profiles other races. These are just a few of the recent episodes that have tarnished the reputation of law enforcement nationwide although all states do not have this problem. The need for broad reform of law enforcement has been acknowledged by the government, civil society, and the law enforcement itself. It also has changed with emphasis on respect for citizen's rights and freedom, service to and protection of the people, and to operate in the public's interest rather than their own. There should be a reform in law enforcement which should include an inclusive determination to stress the state's control of safety roles from the control of the corrupted police leadership, official and unofficial regional political figures, and organized crime groups, as part of its purpose to fight corruption in public life of the state. In today's society law enforcement must be able to have an environment where discrimination is not an issue to ensure the greatest quality of service; department demographics are well diverse to avoid mistrust, and necessary levels of training on use of force and conflict management to promote better decision-making by law enforcement.

STRATEGIES FOR DIFFERENTIATING LITERACY ACROSS THE CURRICULUM
Michelle Atcheson

The research indicates that there is a correlation between the literacy gap and the overarching achievement gap in that one directly affects the other (Pollock, 2012). The educational achievement gap is undergirded by the literacy gap (González, 2015). To aid in closing the achievement gap teachers are provided with numerous instructional strategies as research also supports strategies for differentiated instruction (Beecher, 2008). However, determining and selecting the appropriate strategies for aiding in specifically closing the literacy gap can be a daunting task for teachers. With this presentation I aim to provide educators with differentiated literacy based strategies that will aid in the development of instruction that is geared towards addressing the 5 domains of literacy. All attendees will learn how to implement strategies for differentiating literacy across the curriculum to encompass the five domains of literacy (Reading, Writing, Listening, Thinking and Speaking). We will discuss the strategies and how they are implemented in various learning environments. Prior knowledge of Universal Design for Learning will be of assistance however is not mandatory for attending the poster session. We will also discuss how the strategies encompass the five domains of literacy. The presentation provides strategies and resources that can be utilized immediately by teachers. Teachers will be able to implement differentiated literacy based strategies and through progress monitoring track students' progress towards

increased Lexile levels move towards closing the literacy gap that exists in our classrooms.

Resources: Beecher, M., & Sweeny, S. M. (2008). Closing the Achievement Gap With Curriculum Enrichment and Differentiation: One School's Story. Journal Of Advanced Academics, 19(3), 502-530. González, R. M. (2015). Don't Try to Bridge the Literacy Gap Alone. Phi Delta Kappan, 96(6), 55-58. Pollock, J.E., Black, M. M., & Ford, S. M. (2012). Minding the Achievement Gap One Classroom at a Time. Alexandria, VA: ASCD

HOMELESSNESS AND ITS IMPACT ON RELIGIOUS AND SPIRITUAL BELIEFS
Duane Burton

This study examines if a correlation exists between community response and religious or spiritual practices and their impact on real life change for the homeless. The research also examines relationship between religious perceptions towards the homeless among religious affiliated and non– religious affiliated subjects.

EFFECTIVELY EDUCATING THE NURSE ON CHRONIC OBSTRUCTIVE PULMONARY DISEASE EDUCATION

Rose Dennis

Patient education is the responsibility of the nurse. Nurses receive education and training while in nursing school on chronic diseases but the nurses may not have the depth of knowledge on specific chronic diseases to prepare them as effective patient educators. The objective of this project was to evaluate the nurses' sense of preparedness and ability to provide patient education after the nurses were provided formal training on chronic obstructive pulmonary disease (COPD). Twenty-five registered nurses were educated on patient education specifically created and designed for educating the patient with a history of COPD. The use of patient education materials that are relevant, current, health literate appropriate and colorful can affect how well the nurse perceives the information. Nurses were able to use the COPD educational materials to appropriately deliver education to COPD patients. An evaluation of the effectiveness of the education materials and the effectiveness of the training provided to nurses was assessed by a survey using four questions. The overall survey results were positive and suggestive that specialized training improved the nurses' knowledge, awareness, confidence, and preparedness on COPD education.

Key Words: Chronic obstructive pulmonary disease (COPD), patient education, nurses, chronic illnesses.

APPLYING MINDFULNESS MEDITATION AS A STRESS RELIEVING METHOD

Jacquelyn Ferguson

Stress is defined as an occurrence between the person and their environment that elicits a stimulus and response process which typically has a negative outcome (Lazarus and Folkman, 1994). The American Psychological Association has reported that 67% of Americans experience emotional symptoms of stress and 72% of Americans experience physical symptoms which makes stress one of the leading health issues of today (American Psychological Association, 2014). Stress may lead people to negatively cope and cause an impact on our physical and mental well-being, causing such illnesses as high blood pressure and depression. Current research has documented mindfulness meditation as a useful resource in stress relief. Since meditation is a free medical model in which to lower stress levels in our daily lives, it is an affordable and sustainable alternative to other costly therapies. The goal of this study was to investigate how mindfulness meditation may decrease stress symptoms and increase levels of self-actualization.

BUILDING A STRESS MONITORING SYSTEM USING WEARABLE SENSORS AND SMARTPHONES

Sneha Gogineni

The goal of this project is to build a computing system for obtaining data related to physiological markers for stress in humans via wearable sensors. The computing system will consist of the following: (1) A galvanic skin response (GSR) sensor: Strong emotions can stimulate the human sympathetic nervous system. As a result, sweat glands secret more sweat as a physiological response to emotional stimuli. The GSR sensor can detect such strong emotions by measuring the electrical conductance of the skin. (2) An Arduino microcontroller: a small computer that can collect and analyze the data obtained from the GSR sensor. (3) A Bluetooth device: This device can exchange data over short distances with a mobile device. This project aims at combining all three devices together to build a system that will collect stress markers from humans and will send that data to a smartphone. The project will also build a smartphone app for collecting and analyzing the data obtain from the system. This project is interdisciplinary and will be conducted jointly by TSYS School of Computer Science and the department of Psychology.

COLD TOLERANCE VARIATION IN INTRODUCED APPLE SNAILS ALONG A LATITUDINAL GRADIENT
Marissa Granberry

Island apple snails (Pomacea maculata) have invaded wetlands in warm humid climates of the southeastern United States. These snails greatly reduce wetland vegetation and negatively affect species richness. P. maculata is much larger and more fecund than the native Florida apple snail, Pomacea paludosa that ranges from south Florida to coastal South Carolina and southern Georgia. The larger size and fecundity allows the introduced apple snail to displace native apple snails by exploiting available resources. For example, P. maculata feeds on periphyton and the wetland vegetation that periphyton grows on, while native apple snails primarily feed on periphyton.

My research focuses on the survivorship and growth rate of groups of P. maculata from different locations across Georgia and Florida, when raised at different temperatures. Based on previous research of cold tolerance in this species, I predict that snails from more southern locations, like those in Florida, will have lower survivorship and growth at cold temperatures than those from more northern populations. To test this prediction, I will raise snails from each location in tanks at different temperature levels. I will collect egg masses from two locations in Florida – around Tampa and Miami, and two locations in Georgia – near Albany and along the Georgia-South Carolina border. Approximately 720 snails will be raised and exposed to a temperature gradient in the lab. I will determine the average growth rate and survivorship of each population in response to the treatments.

The presence of these non-native snails could reduce the species richness of the native Pomacea snails as well as negatively impact the vegetation that the native species feeds on. This research will help determine if the invasive snails can continue to migrate north into the Carolinas and above based on the annual low temperatures for those areas and the snails' ability to adapt to those temperatures. Also, this research can help determine how quickly they will grow when exposed to adverse conditions. This project will also help us understand how this introduced species might impact wetlands and aquatic ecosystems throughout the southeast by understanding the potential for them to acclimate to low temperatures. Greater knowledge of these invertebrates is necessary in order to prevent the spread of these potential pests. If temperature is shown to have an effect on survivorship and growth, future research will be done to determine their potential possible spread throughout the United States.

BYSTANDER PRIVACY
Scott Griffith

Recent advances in mobile Internet, the development of cheap but powerful sensors, and new business models are developing new classes of applications and devices. Among these, consumer wearables have emerged as disrupting devices that are benefiting the common citizen in areas such as m-Health, fitness, security and entertainment. The mass-adoption and the expected growth of the market of these devices not only generates value, but also brings important privacy issues for their users and to those around these devices, depending on the type of sensor and how these sensors are used. With the significant numbers of consumer wearable devices available, and the expected market of these devices in the near future, it is the purpose of this poster to present the state of the art in an important topic related to them which is the issue of Bystander's Privacy. Bystander's Privacy is the problem of protecting the privacy of those who can be affected when collecting data using a wearable device and sensors that can provide identifiable data. Examples of these sensors are head-mounted cameras and embedded microphones, as these sensors can capture data that could identify easily people and actions that are not related to the user of the wearable. This problem has been overlooked since most of the research has focused on the privacy of the wearer of the sensor instead of whoever else's privacy can be affected by the data collection effort. Nevertheless, the public perception about this issue tells otherwise. Some of the current solutions in this topic includes face blurring, notification protocols (e.g., agents that notify bystanders or wearers about privacy rules)

and access control models in operating systems. It is the purpose of this poster to inform about the human-computer interaction's aspects of Bystander's Privacy, the current methods found in the literature and the open challenges in this area of research.

SEXUAL EXPRESSION IN LATER ADULTHOOD

Nekesha Johnson

Co-author – Esaysha Golden

This research explores the influences of age, biological, and psychosocial factors on sexual expression in later adulthood. The American Association of Retired Persons Modern Maturity Sexuality Survey (1999) collected data on diagnosed illnesses, treated illnesses, sexual desire, sexual attitudes, partner circumstances, and sexual behavior of persons. The authors conclude that the nature of sexual expression in later life reflects the interplay of body, mind, and social context. (DeLamater, 2002). Using 25 Items questionnaire along with demographics will be administered to the older adults at an assisted living facility. The data will be analyzed and factors that predict what psychosocial factors are associated with sexual expressions. The role of prevention education in with this client population will be discussed.

POSTER ABSTRACTS

BARCODING THE VEGETATION OF LONGLEAF PINE SAVANNA
Damarcus Lewis

DNA barcoding is a molecular technique that allows organisms to be identified from small tissue samples (Hebert et al. 2003). To do this, DNA for a particular gene region can first be amplified and its genetic sequence determined. Ideally, all individuals belonging to a particular species should have the same base-pair sequence for a given barcoding gene region (Herbert et al. 2003). In plants, different gene regions have been used to identify species. One of the most commonly used is the rbcL gene region located in the chloroplast genome (Fazekas et al. 2009). This region has been shown to be quite effective in distinguishing plant species (Burgess et al. 2011) and has been used in a variety of studies. The central goal of this research was to develop a DNA barcode library for Longleaf Pine Savannas. This is part of a larger institutional goal of eventually barcoding all the flora in the southeastern region of the United States. The library could prove to be a valuable resource for future ecological research in such areas as pollination ecology and plant herbivore interactions. The barcode library would also help in comparing the flora across different areas. In all, 78 total samples were sequence during this research. Of those 78 samples, I obtained 59 PCR products and 55 were successfully sequenced. Out of the 55, 47 were new sequences not in GenBank, while four were unusable. Dilutions were used in this experiment in order to try and dilute any plant chemicals that may interfere with sequencing. With the data collected, the ideal dilution was any concentration of those that we used that worked on a particular species. Four of the 78 sequences came out messy and were unable

to be sequenced. This could be due to contamination of other plant material, chemicals in the plant or human error.

AI.CUPPER, ARTIFICIAL INTELLIGENCE COFFEE JUDGE (CUPPER)
Javier Livio

High quality coffees, coffees of superior aroma and flavor have sparked a considerable stream of business around the globe. These coffees are categorized as "Specialty Coffees": coffees made from the highest quality beans (Donnet, Weatherspoon, & Hoehn, 2007). The quality of these coffees is measured by their very nature as they are judged upon a set of attributes (Fragrance/Aroma, Flavor, Acidity, etc.) which are sensorially evaluated by coffee experts (cuppers in the coffee industry). The process of sensorial evaluation of the coffee bean attributes, Sample Evaluation by cuppers, ultimately reflects the cupper's perception of the coffee bean quality. This process is done for three major reasons: to determine the actual sensory differences between coffee samples, to describe the flavors of the samples, and to determine preference of product. In addition, cupping targets the measurement of the coffee's quality which is expressed with a final numerical score (SCAA, 2013). To support the manual process of evaluating the coffee bean attributes, notes taking and score gathering, judges are trained to fill forms like the Cupping Form created by the Specialty Coffee Association of America (SCAA) (SCAA, 2013) as part of their standard protocol. When cupping, the expert judge writes down the individual components' scores and ranks their intensities for reference. Despite the fact that the cuppers are using natural language statements in their judgment, they are required to use numerical values to evaluate the coffee bean attributes. The work of this thesis is to develop a fuzzy expert system (AI.CUPPER) to assist the cuppers in using natural language to evaluate the

different features of coffee beans rather than recording numerical scores using the Specialty Coffee Association of America (SCAA) cupping form to derive quality scoring when grading specialty coffees. The judge's perception could be better assisted with a collection of linguistically expressed terms instead of numbers (complementary terms acting as shapers of the coffee bean's attribute score's gradation of meaning). Fuzzy logic has been successfully used to measure how well an instance (value) conforms to a semantic ideal or concept and this compensates well with the imprecision of the sensorial nature of the cupping process which will be the core of the proposed expert system (Cox, 1999).

THE SIGNIFICANCE OF LEARNED SOCIAL ATTACHMENTS FOR LIFE SATISFACTION AMONG GENDER NONCONFORMING COLLEGE STUDENTS

Nathaniel Maddox, Kari West & Ashley Howard

Several prior scientific studies have shown that life satisfaction is negatively correlated with gender nonconformity in adolescents and transition aged youth. However, there is little agreement as to why. Researchers argue that gender nonconformity is negatively correlated with life-satisfaction not because of gender nonconformity de facto; rather, the individual's internalized felt need to conform to an external, ideal standard of gendered behavior might be the contributing factor to decreased life satisfaction. Still others argue that aberrant social relations, such as bullying, poor parenting, and lack of peer acceptance likely account for the negative correlation between gender nonconformity and life satisfaction. Further studies have also found a negative correlation between life satisfaction with weak social attachments and integration. Building on this body of knowledge, our research project sought to determine if healthy attachment styles among gender nonconforming college students is positively correlated with life satisfaction. In turn, positive healthy attachment styles might serve as a protective factor for gender nonconforming college students as they navigate a heteronormative, and often hostile, social environment. By better understanding the relationship between attachment styles and life satisfaction, systematic approaches can be developed to assist nonconforming persons in building a positive and meaningful life. Our research was conducted from January to May 2016. The Satisfaction with Life

Scale, The Bem Sex Role Inventory, an adaptation of The Revised Adult Attachment Scale, and a brief demographic questionnaire were administered to 122 college students at Savannah State University and the Savannah College of Art and Design. Due to our sample size, our findings were not conclusive. Nonparametric tests, however, demonstrated trends in our data collection that support our hypotheses: when compared with their peers with anxious or avoidant attachment styles, both gender nonconforming college students with secure attachment styles report higher life satisfaction. Though our results indicate that there is trending association between life satisfaction and secure attachment style, we will need to increase our sample size in future research to determine if a secure attachment style actually functions as a protective factor, enhancing adaptability and fulfillment for gender nonconforming college students as they navigate personal relationships and the broader culture.

TOWARDS A COMPUTATIONAL MODEL OF EMERGENT
NARRATIVE

Praneetha Mandava

The goal of the Thesis is to develop computationally creative system. Computational creativity is located at the intersection of the fields of artificial intelligence, cognitive psychology, philosophy and the arts hence it called as multidisciplinary endeavor. Model, simulate or replicate creativity using computer is the goal of computational creativity. This is done to achieve the following: (1) To create a program or the computer that is capable of human level creativity. (2) To formulate an algorithmic perspective on creative behavior in humans by understanding human creativity. (3) To enhance human creativity by designing the programs. In my thesis the computationally creative system is designed to develop a creative story. The story will be created based on the key words provided by the user. In order to develop this system we will be using SOAR. SOAR is a cognitive architecture for developing a system that exhibits intelligent behavior. Initially some set of stories are loaded into the semantic memory of SOAR, based on the key words provided by the user the related words of those key words are retrieved and creative story will be created by the system.

COMPARISON OF CLINICAL MENTAL HEALTH COUNSELING TRAINING AND PROCEDURES IN THE UNITED KINGDOM AND UNITED STATES

Mary Petermann

The purpose of this research was to examine distinct differences and similarities between the United Kingdom's (U.K.) and United States' (U.S.) licensure requirements in clinical mental health counseling and the ethics related to the practice. Information was acquired by conducting an interview with a licensed professional counselor in Oxford, England and through the National Board of Certified Counselors (NBCC) in the United States. The commonalities between the two countries for becoming a certified counselor include earning a degree in a related field and participating in a supervised placement. The academic training necessary for earning a degree in this field is split into three stages in the U.K., whereas in the US it is all typically included in a two year graduate degree program. Licensure in the U.S. varies by state, and accreditation in the U.K. can be obtained through one of two accrediting bodies. As an example of the process in the U.S., the licensure procedures in the state of Georgia were thoroughly discussed. In both the U.K. and U.S. a certain amount of years of practicing under supervision is required, after earning the degree, in order to become fully licensed or accredited. Additional standards are required by both countries to maintain licensure or accreditation, including continuing education on topics and training related to the mental health field. Both countries have marked differences in handling insurance, diagnosis, and treatment and conversely several similarities in addressing ethical issues. The

most notable difference in the U.K. and U.S. is the interference of managed care in the U.S., which can dictate the type of treatment and amount of sessions regardless of professional opinion. Counselors in the U.K. typically have more liberty in selecting the treatment methods to use with clients. Ethical issues are addressed through various associations and accrediting bodies in both countries, which outline specific procedures for handling any sort of ethical concerns.

DOES THE STIGMA OF HOSPICE DETER PATIENTS FROM BEING ADMITTED TO A HOSPICE?
Cristian Rodriguez

This study will examine the reasons people are reluctant to seek hospice car. Hospice is recognized for providing excellent end-of-life care to patients who have six months of life to live, but may be underused by a lot of different patients. Although this information is assessable, there's a huge stigma about hospice that describes hospice as a death bed. In this study, the variables used were measured by a questionnaire survey. Historically, there is lower satisfaction among patients and family members who are referred to hospice after prolonged aggressive treatment. The questionnaire assessed the variables in the research hypothesis. The questionnaire was derived of a total of 29 items. It included 10 items form the Rosenberg Self-Esteem Scale and 19 items measuring knowledge and attitude of hospice. The data was collected by sample of convenience; individuals and groups. Because the study is based on the perception of hospice and hospice care is not limited to any group, it was decided that demographics was not necessary. Through observation, this allowed for participants to focus more on the survey itself.

DOES KNOWING YOUR HIV STATUS DETERMINE YOUR GENERALIZED LEVEL OF CONTENTMENT?

Lori Seymore-Williams

Every year a growing number of students are being infected with the Human Immunodeficiency Virus (HIV) on college campuses. In 2001, the Centers for Disease Control and Prevention (CDC) issued revised guidelines for HIV counseling and testing, emphasizing the importance of testing in non-traditional settings (Cuneo, Hicks, Miligan, & Rutstein, 2014). Non-traditional settings include college campuses. While a number of campuses have certified agents on campus to do HIV testing, there are still an alarming number of campuses who do not have protocols in place for testing. College campuses may provide a unique setting to deliver HIV testing and may help increase the percentage of young people who are aware of their serostatus, particularly younger, female, and African-American students who may be less likely to undergo testing in traditional clinic settings (Przybyla, 2013). Therefore the role of HBCU becomes all the more important as it is traditionally recognized for enrolling African Americans. This research explores student's 'Level of Contentment' as a Dependent Variable and HIV status as an Independent Variable.

JOB CHARACTERISTICS STUDY

Joy Smalls

It is not a secret that workers will be more productive if they experience job satisfaction. This study explores the relationship between Pay, Job Characteristics and Job Satisfaction. It hypothesizes that Pay and Job Characteristics will predict Job Satisfaction. Using a 24 item questionnaire, respondents will be asked to respond to a two page questionnaire that also includes demographics. This questionnaire will be administered at a small business organization. Employees will volunteer and respond. There is no reward associated with participating in this survey. Currently IRB request is under consideration. Data will be gathered and responses will be tabulated using IBM SPSS Statistics. Implications for Social Work will discussed.

ELEMENTS OF FANTASY: COSPLAY
Savannah Stevens

In recent years the world of fantasy and science fiction has come to the forefront of mainstream society and popularity. These once social pariahs, have now been embraced by popular culture and are drawing all new crowds of people. With this major shift in the general public, a need for research arises to allow psychologists to stay informed with current interests and influences. Malone & Lepper (1987) described fantasy as an environment where individuals mentally evoke images of physical or social events that are not present. Freud (1950) and Murray (1938) agreed that people may use fantasies to attempt to satiate emotional needs that are not otherwise being met. One form of fantasy that is becoming more socially acceptable is cosplay. Cosplay is a term that integrates "costume" and "play" (Winge, 2006). This can be thought of as individuals dressing to emulate the core traits of a particular character within a fictional realm. Previous work has proposed that individuals may utilize cosplay as a way to channel a longing to become someone else (Napier, 2005 and 2007). Other researchers have found that cosplay could be used as a way for a person to create their identity, as opposed to the popular idea that it is used as a form of escape (Bonnichsen, 2011). Based on a recent pilot study conducted by the researcher, preliminary findings suggest that individuals who engage in cosplay may be spending too much time in the fantasy world and thus distracting from and potentially upsetting their work-life balance. The current work seeks to explore the role of cosplay in the formation of one's personal identity. Further, this work will examine the impact of

excessive engagement in cosplay on one's work-life integration. The proposed work will utilize an online survey to examine the relationships between the concepts of interest and their impact on individual's ability to manage and integrate their work lives and home lives.

USE OF METHYLOBACTERIUM AS A POSSIBLE PROTECTION AGAINST PATHOGENIC INFECTION IN CRIMSON CLOVER

Ashley Turner

Bacteria of genus Methylobacterium are known to grow in the phyllosphere of clover being beneficial to the plants (Omer, et al. 2006). Depending on the species, these bacteria have been known to form biofilms and be involved in nitrogen fixation and nodule formation (Sy et al. 2001, Menna, et al. 2006), some species produce phytohormones (Meena, et al. 2012), interact with plant pathogens (Lacava, et al. 2004, Ararújo et al. 2002, Yin, et al. 2013), promote plant growth (Madhaiyan, et al. 2006, Tani, et al. 2012) and induce increased photosynthetic activity (Cervantes-Martínez, et al. 2004). In 2013, Yim et al., found that methylobacteria increased defense enzymes in tomato plants by modulating the ethylene biosynthesis pathway. Tomato plants were inoculated with the methylobacteria and challenged with Ralstonia solanacearum. In that same work, plants that were treated with the Methylobacterium showed significantly reduced disease symptoms and lowered ethylene emission under greenhouse conditions. The use of these bacteria as biocontrol agents should be further studied. I am conducting an experiment investigating the effectiveness of biocontrol methods of Methylobacterium on clover plants. Clover is an important agricultural crop. It is possible that the Methylobacterium are beneficial to numerous plant species and a better understanding of how these bacteria interact on the clover phyllosphere could lead to higher crop yields.

Since the Methylobacterium frequently colonize the clover, it can be isolated from clover grown in a garden on Columbus State

University's campus. Seventy clover plants will be grown in a growth chamber in the lab. The seeds, roots and leaves of the plants at different growth stages (at time of planting, after germination, when leaves have developed) will be inoculated with the isolated bacteria or remain sterile as a control. The seventy plants are set up into ten sets: ten sterile, ten sterile and pathogen later applied, ten with just methylobacteria, ten methylobacteria with pathogen applied, ten with the entire microflora (not just methylobacteria) and ten with the entire microflora and pathogen later applied. Inoculating with the entire microflora would test if the methylobacteria alone is enough to be beneficial or if the plant needs the entire microflora for protection. The disease index will be calculated on certain days for the clover plants grown in a growth chamber. I hypothesize that the pathogen will be suppressed by Methylobacterium because it is known to increase plant defenses.

FEAR VS. ASSURANCE: SAFETY ON CAMPUS
Nikesha Wofford & Tamekia Richardson

Crime is everywhere. Therefore, the university campus is no exception to this problem. After recent criminal events that have occurred on Savannah State University campus, we feel students living there don't feel safe. For many students it becomes overwhelming dealing with whether they will be involved in some type of criminal incident. Students should be concerned with academics and campus activities not their safety. The purpose of this research is to open up communication between students and administration to help make SSU safer. By focusing on student perceptions, this research aims to reveal the types of safety issues students are concerned about, as well as how students perceive safety on campus and how they use and perceive various security services on campus. Administration is usually focused on the statistics and not where it needs to be on the student's perceptions of their safety. The result of this research can be a useful tool to help Savannah State University gage the types of safety issues students are concerned.

Keywords: Safety, Crime, Security, Campus, Students, Perception, Concern References Fox, J.A., & Savage, J. (2009). Mass murder goes to college: An examination of changes on college campuses following Virginia Tech. American Behavioral Scientist, 52(10), 1456-1485. Janosik, S. M., & Gregory, D. E. (2009). The Clery Act, campus safety, and the perceptions of senior student affairs officers. NASPA Journal, 46(2), 208-227. Kingsbury, A., Brush, S., Green, E.W., & Schulte, B. (2007). Toward a safer campus. U.S. News & World Report, 142(15), 48-52. Retrieved February 21, 2016, from

Academic Search Premier database. Nicoletti, J., Spencer, -Thomas, S., & Bollinger, C. (2001). Violence goes to college: The authoritative guide to prevention and intervention. Springfield, IL: C.C. Thomas.

3:30 pm – 5:00 pm*

PANEL SESSION 3

Panels 3-A, B & C running concurrently

*Panel 3-C will run until 6:00 pm

3-A   Complex Machines: Scholarship on Using Technology to Address Health Issues

Conference Room 209/210

Panel Chair & Discussant
Dr. Rodrigo Obando – Columbus State University

Presenters

Robert Lewis
Education Leadership, Columbus State University

Autism Speaks to Me!

Himaja Sivaraju
TSYS School of Computer Science, Columbus State University

Fuzzy Decision Tree-based Inferencing for Liver Disease Diagnosis

3-A Abstracts

AUTISM SPEAKS TO ME!
Robert Lewis

In 2000, the CDC reported that one in one hundred and fifty children was identified with Autism Spectrum (ASD). In 2012, that number had dramatically increased, with the CDC reporting that one out of sixty-eight children was now identified with Autism Spectrum Disorder (ASD). This rising statistic has had a major influence on the U.S. education system, increasing the need for more special education teachers in classrooms across America, as well as highlighting the need for research exploring which teaching strategies have the most positive impact upon this growing population of students. This presentation will examine the various teaching methods that have the greatest and most effective impact on students with ASD. Applied Behavior Analysis (ABA) is one of the most commonly used teaching methodologies that is used in special education classroom with students diagnosed with ASD. ABA is a process of systematically applying interventions based upon the principles of learning theory to improve social behaviors. Another teaching methodology includes Discrete Trial Teaching, which involves breaking the skill into smaller components. Applied Behavior Analysis and Discrete Trial Teaching are researched-based practices that are commonly used to target academic and social behaviors. The presentation will compare these classroom approaches and examine the strengths and weaknesses of each, including an analysis of their practical application to the special needs classroom. One other particularly important classroom pedagogy involves the increased use of technology, more specifically the use of apps, such as Behavior World, Draw

Emotions, and Catalyst, that can be applied to the curriculum. Many of the apps have claims of diminishing behaviors or suggest great gains in mastering a specific goal. This presentation will analyze this growing trend in the special needs classroom, as well as examine the most effective apps that can be used in the classroom for students diagnosed with ASD.

References McKenney, E. W., & Bristol, R. M. (2015). Supporting intensive interventions for students with autism spectrum disorder: Performance feedback and discrete trial teaching. School Psychology Quarterly, 30(1), 8-22 Peters, B. & Forlin, C. (2011). Informing educational decisions in the early years: can evidence for improving pedagogy for children with autistic spectrum disorder be found from neuroscience? British Journal of Special Education, 38: 135–142. Sarahan, N., & Copas, R. (2014). Autism assets. Reclaiming Children & Youth, 22(4), 34-37. The Autism Community. (2016). Applied behavioral strategies. Getting to Know ABA. http://www.autism-community.com/what-is-discrete-trial-teaching/ The Centers for Disease Control and Prevention. (2016). Autism Spectrum Disorder (ADS). Data & Statistics. http://www.cdc.gov/ncbddd/autism/data.html

FUZZY DECISION TREE-BASED INFERENCING FOR LIVER DISEASE DIAGNOSIS

Himaja Sivaraju

Medical diagnosis can be challenging because of a number of factors. Uncertainty in the diagnosis process arises from inaccuracy in the measurement of patient attributes, missing attribute data and limitation in the medical expert's ability to define cause and effect relationships when there are multiple interrelated variables. Given this situation, a decision support system, which can help doctors come up with a more reliable diagnosis, has a lot of potential. The proposed project aims to investigate the application of fuzzy logic to help diagnose liver diseases based on blood test results. In particular, the project will design and implement inferencing systems to classify patient data using a fuzzy decision tree and a fuzzy rule-based system. The fuzzy decision tree will be used to generate rules that will form the rule-base for diagnostic inferencing. Decision Trees are used in data mining for classification and regression. They are simple to understand and interpret as they can be visualized. But, one of the disadvantages of decision tree algorithms is that they deal with only crisp or exact values for data. Fuzzy logic is described as logic that is used to describe and formalize fuzzy or inexact information and perform reasoning using such information. Although both decision trees and fuzzy rule-based systems have been used for medical diagnosis, there have been few attempts to use fuzzy decision trees in combination with fuzzy rules. To build a fuzzy inference system for liver disease diagnosis, first the patient dataset will be acquired, and then a fuzzy decision tree which combines the concept of

decision trees with fuzzy logic will be built. Fuzzy rules will be extracted from this fuzzy decision tree and used in building a fuzzy inferencing system. The system's performance will be evaluated by comparing it with regular (non-fuzzy) decision tree-based classification.

3-B   The Road to Understanding: Contemporary Issues in Higher Education

Conference Room 215/216

Panel Chair & Discussant
Dr. Jim Rubin – Columbus State University

Presenters

Varonika Hardman
Counseling, Foundations, and Leadership, Columbus State University

Improving College Retention

Nicholas Overby, Madison Raley & Branden Printup
Teacher Education, Columbus State University

Exploring a Yearlong Model for Mentoring Teacher Candidates

Jeremiah Pitts
Counseling, Foundations, and Leadership, Columbus State University

An Examination of the Experiences of International Students at Post-Secondary Institutions Recruited by Paid Agents

3-B Abstracts

IMPROVING COLLEGE RETENTION
Varonika Hardman

Education, especially higher education, has traditionally served as the equalizer which transitions individuals from poverty to self-sufficiency; provides the pathway for a skilled worker to become a supervisor; and as the portal through which a nation becomes a global power. Thus, high school and college graduation rates are scrutinized. The desire to pursue higher education has not diminished; more than twenty million students are enrolled in higher education nationwide. Students seem to know that postsecondary credentials are necessary for the fastest-growing job opportunities as well as the better paying ones (U.S. Department of Education, 2014). Although students are enrolling in large numbers, the graduating rates do not mirror enrollment. Among the 4700 institutions of higher education, student attrition rates are reaching between thirty and fifty percent (O'Keefe, 2013). The startling fact puts the United States in an unenviable position of having the highest rate of student attrition in the industrialized world (2013). According to the National Student Clearinghouse Research Center, more than three million students who were enrolled in fall 2012 failed to return to any institution for fall 2013 (Fain, 2014). The declining college persistence rates are problematic because the rates affect institutions and the national agenda. Students do not persist in higher education for various reasons but there are commonalities. Researchers have determined that at-risk students are often academically challenged students;

students with disabilities; low-income students; and minorities. These students tend to be unprepared for the study habits and social integration required to fully adapt to college life. However, research shows that specific initiatives as well as welcoming behaviors of faculty and staff boost students' ability to cope and thereby learn. While persistence has long been a concern, government pressure and the resurgence of performance-based systems are pushing institutions to implement strategies immediately. Research included in this paper provides examples of retention strategies and a recommendation for institutions to remain dutiful to its regional students and workforce.

EXPLORING A YEARLONG MODEL FOR MENTORING TEACHER CANDIDATES

Nicholas Overby, Madison Raley & Branden Printup

The traditional model for educating teacher candidates operates under the notion that for those candidates to grow and learn, they must attend a variety of sites. This model suggests that teacher candidates can only receive diverse experiences by training in multiple sites. Thus, the traditional model requires that teacher candidates split the school year— learning from a different teacher in a different school each semester. However, the merits of a yearlong placement for teacher candidates have been considered by multiple studies. A yearlong placement is one that allows teacher candidates to grow as an educator in a single classroom, with a single mentor teacher, for a single year. Previously conducted studies suggested that teacher candidates achieved growth from the yearlong model because they adapted to and became comfortable with the school environment and mentor teachers. Furthermore, the studies suggested that the teacher candidates' comfort allowed them to learn from authentic teaching experiences. However, previous studies did not directly address how relationships between teacher candidates and their mentor teachers developed or the exact benefits of such relationships. This panel presentation, then, will present findings from a qualitative research study that examines such mentoring relationships in a yearlong model. For this study, a university paired with a high school in an attempt to implement a new, yearlong placement model for training teacher candidates. The goal of the research study was to determine how the yearlong model impacted teacher

candidate and mentor teacher relationships, including their trust, comfortability, and teacher candidate growth. Specifically, this study asked: What are the participants' perceptions of the university-high school partnership? What are the participants' perceptions of the yearlong model? How does the idea of relationships unfold among the participants? The participants in this study were teacher candidates majoring in secondary English education and those candidates' high school English mentor teachers. To determine the effectiveness of the yearlong model, the following data sources were used: focus group interviews among the teacher candidates and the mentor teachers, field placement reflections and analyses composed by the teacher candidates, and interviews conducted among mentor teachers. Thematic analysis was conducted among all data sources. A yearlong placement model was supported by the results of this study. Specifically, the data revealed two consequences from a yearlong placement. Firstly, a yearlong placement develops comfort and trust between the teaching candidate and mentor teacher. Secondly, that comfort and trust inevitably encourages effective, authentic mentorship.

AN EXAMINATION OF THE EXPERIENCES OF INTERNATIONAL STUDENTS AT POST-SECONDARY INSTITUTIONS RECRUITED BY PAID AGENTS

Jeremiah Pitts

This presentation explores the available literature surrounding the use of paid agent for international recruitment of post-secondary students. International students are part of the fabric of higher education, and the presentation will address how they have been treated through official recruitment policies at the organization, national, and international level. Paid agents are recruitment personnel who are compensated for their assistance or advice to prospective students on a per student basis and often operate independently from the institution. They have been prohibited for domestic recruitment within the United States, but they are still allowed to recruit for international students. As financial pressures have been exerted on higher education, institutions have responded through looking for new streams of revenue. One avenue they have explored in renewed earnest is the use of international students to increase enrollment. Simultaneously, international students are attempting to reach educational destinations in increasing numbers. They do not, however, have enough information to be able to make an informed decision about a destination. For their part, the institutions which want to recruit international students struggle to effectively reach them on their own. International recruitment is expensive for an institution, and it is fraught with dangers of miscommunication and cultural misunderstandings. Paid agents help to bridge the gap between the institutions who are looking to recruit international students,

and the students who are interested but uninformed about their options. Unfortunately, international students are also very susceptible to misinformation, and institutions have been victims of inflated student qualifications. While the United States has begun exploring the paid agent regulation options only recently, other nations such as the New Zealand and Australia have a longer history of dealing directly with such recruitment methods. The presentation looks at several studies which have examined the role of paid agents in the process of recruiting international students from the standpoint of the students and agents.

3-C   *The Natural Solution: Natural Sciences Research*

Conference Room 310/311

Panel Chair & Discussant
Dr. Kevin Burgess – Columbus State University

Presenters

Brandon Furnish
Earth & Space Sciences, Columbus State University

Effects of Carbon Dioxide on Algae Production in Tertiary Wastewater Treatment Systems

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Caitlin Gallagher
Biology, Columbus State University

Effects of Female Condition and Human Disturbance on Allocation of Biliverdin to Eggshells of Eastern Bluebirds (Sialia sialis) Breeding in West-central Georgia

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James Kiourtsis
Earth & Space Sciences, Columbus State University

A look into Cambarus harti and it's Known Distribution

Mengyuan Li
Earth & Space Sciences, Columbus State University

Effect of Chironomids on Nutrient Removal in Wastewater Algal Treatment Systems

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Kerstin Motsch
Earth & Space Sciences, Columbus State University

Going Green: A Look at Water Quality in Cape Coral Florida

Bridget Smith
Biology, Columbus State University

Effects of Stress on Hormonal Protection in Astrocytes

Lauren Whitehurst
Biology, Columbus State University

Implementing a DNA Barcoding Pipeline for the Identification and Prevention of Invasive Plant Propagules Entering Ports

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Kristin Youngquist
Earth & Space Sciences, Columbus State University

Air Quality and Socioeconomic Benefit Analysis of Trees in Columbus, Georgia

3-C Abstracts

EFFECTS OF CARBON DIOXIDE ON ALGAE PRODUCTION IN
TERTIARY WASTEWATER TREATMENT SYSTEMS
Brandon Furnish

It has been observed that infusing effluent waste water with carbon dioxide causes an increase in algae growth resulting in greater nutrient uptake. In normal bodies of water algae growth is limited by the abundance of nutrients such as nitrogen and phosphorus. Eutrophic waters, such as waste water, have abundant nutrients which the algae can uptake, removing from the waters. It is hypothesized that because nitrogen and phosphorus are no longer limited algae may become carbon and pH limited. As algae grow they must use carbon which drives the pH up to an alkaline level. The infusion of carbon dioxide into water reduces the pH while providing a source of carbon as well. It is unknown which has a greater effect on algae growth and production.   In the first experiment, sixteen recirculating flumes will be used to grow algae. The algae will be grown upon clay tile substrates that run the length of the flumes. Half of the flumes, at random, will be infused with carbon dioxide while the others remain untreated for controls. Nutrient levels including, total nitrogen, total phosphorus, phosphate and nitrate will be analyzed every five days for a total of 15 days. Ash free dry mass and chlorophyll will be analyzed from samples of algae taken on days 5, 10 and 15. The next experiment will replace carbon dioxide with a pH altering acid such as hydrochloric acid so that no carbon is added to the system. The last experiment will replace the hydrochloric acid with a carbon

source such as bicarbonate that does not alter pH. Sample collection and analysis will remain constant throughout the experiments. In order to determine statistical significance, the data will be analyzed using a repeated measures analysis of variance model followed by post-hoc pairwise comparison. If significance is found between the treated and untreated flumes we have determined a new use for carbon dioxide. One where it is used to increase the rate at which algae can treat wastewater in tertiary treatment systems, and be harvested for biofuels, further closing the loop in sustainability.

EFFECTS OF FEMALE CONDITION AND HUMAN DISTURBANCE ON ALLOCATION OF BILIVERDIN TO EGGSHELLS OF EASTERN BLUEBIRDS (SIALIA SIALIS) BREEDING IN WEST-CENTRAL GEORGIA

Caitlin Gallagher

Variation in avian eggshell coloration has been a topic of scientific interest for many years. Several hypotheses have been proposed to explain the significance of eggshell diversity, but many researchers continue to be baffled by the evolution of the highly conspicuous blue-green background coloration seen in many bird species, including the Eastern Bluebird (Sialia sialis). This blue-green coloration is due to the pigment biliverdin, which is synthesized by female birds and allocated to the outermost layer of the eggshell through the shell gland of the oviduct. In addition to being incorporated into eggshells, biliverdin also has antioxidant properties for female birds and it helps to reduce free radical damage. Therefore, female birds in better condition may be able to allocate higher concentrations of biliverdin into their eggshells since they require less for their antioxidant defenses, making biliverdin-eggshell coloration a post-mating signal of female quality and overall health. Male birds can then use this honest signal of female quality to determine how much paternal effort to invest when raising a female's hatchlings. In addition to female condition, stressful environmental conditions can also reduce a female bird's ability to allocate biliverdin to her eggshells due to the increased need for biliverdin in dealing with oxidative stress. Biliverdin concentrations in the eggshells of female Eastern Bluebirds breeding in high and low disturbance areas will be

compared to determine if there is an effect of stress on biliverdin allocation in the species. Biliverdin concentrations will be compared with egg mass, female quality, or reproductive success detecting any correlations. In order to determine this, third-laid eggs were collected from bluebirds breeding on the main campus of Columbus State University and at Callaway Gardens, a private resort near Pine Mountain, GA. After egg collection, study nests were monitored to determine how many eggs hatched and how many chicks survived to leave the nest. In the lab, biliverdin concentrations will be quantified using reversed-phase high-performance liquid chromatography.

A LOOK INTO CAMBARUS HARTI AND IT'S KNOWN DISTRIBUTION

James Kiourtsis

Cambarus harti is a state-listed endangered, endemic crayfish found only in three counties in mid-west Georgia. Several studies have been conducted in an attempt to characterize the biology and ecology of this crayfish, however data regarding the distribution of this rare, endemic crayfish remain limited. The International Union for Conservation of nature stated that in order to create an effective conservation plan for it, the known distribution must be expanded. Species distribution models are an effective way to identify locations that have similar habitat characteristics to those with known populations. One species distribution model, Maximum Entropy (MaxEnt), has been shown to be the preferred approach when modeling species, like C. harti, that have a few known locations. In this presentation, I review what is known about C. harti and why MaxEnt would be an appropriate model for locating new C. harti populations. By advancing our knowledge of C. harti's distribution, environmental scientists can make more informed conservation decisions necessary to protect this rare, Georgia endemic.

EFFECT OF CHIRONOMIDS ON NUTRIENT REMOVAL IN WASTEWATER ALGAL TREATMENT SYSTEMS
Mengyuan Li

Wastewater, even after secondary treatment, is a major source of nutrients that can cause eutrophication of lakes and streams. This problem has led to the development of numerous studies focused on nutrient removal issue, mainly nitrogen and phosphorus. However for nitrogen and specially for phosphorus only a limited range of treatment technologies can generate a compatible effluent with most existing standards and these processes involve generally high costs and complex operations. Cultivation of algae in urban wastewater as an alternative approach for removing nutrients from the wastewater has been researched for more than fifty years. The results have shown great efficiency on removing nutrients in wastewater streams. However, the open system design makes it vulnerable to colonization by various species, which may cause grazing of algae, resulting in lower nutrient removal rate. The most common pests found within the system are chironomids (midges). This study was designed to examine how midges influence the nutrient removal rate in an algal-based wastewater treatment system. A replicated, pilot-scale algal flow-way was installed in the South Columbus Wastewater Treatment Plant in Columbus, GA and operated for two separate 20 days trials by diverting secondarily treated wastewater and passing it over the cultivated algae in the runways. Assessment of the effect of midges has been accomplished by allowing them to thrive in half of the system while treating the other half with Bacillus thuringiensis var. israelensis (Bti), a microbe naturally found in soil which makes

toxins that target insect larvae when eaten. Both water and algae samples were collected every 4 days and analyzed for nutrient concentration in water and elemental makeup in algal cells. The midge population was counted for quantifying the effect of the control method. In the first 20 days trial, 91% and 97% nitrogen was removed from the non-midge and midge groups, respectively. Phosphorus concentration was also significantly lowered by 45% within the system treated with Bti and by 39% within the other system with the presence of midge grazers. Similar patterns were detected in the second 20 days trial. On the other hand, statistical analyses suggest that grazing can either weaken or enhance nutrient removal through different pathways. In addition, grazing pressure significantly influenced algal tissue nutrients by reducing nitrogen uptake while increasing phosphorus accumulation.

GOING GREEN: A LOOK AT WATER QUALITY IN CAPE CORAL FLORIDA
Kerstin Motsch

As water bodies throughout the world are faced with degradation it has become crucial to understand the mechanisms and affects, which lead to this deterioration. Gaining a clearer understanding of anthropogenic stressors is crucial in facilitating better management of water resources for future generations. The Cape Coral canal system located in Lee County, Florida is no exception to such stressors as they are faced with degraded water quality caused by excess nutrient inputs. Eutrophication caused by increased nutrient inputs not only leads to undesirable aesthetic effects throughout the system but can also impact ecosystem function. The main objective of this research is to evaluate water quality throughout the Cape Coral canal system in Florida using data collected at monitoring stations throughout the canal system. In this presentation I would like to review water quality impairment and possible ways to characterize it spatially throughout the system. I will close the presentation with the importance of water quality monitoring as understanding and identifying the dynamic patterns in quality throughout the canal system will aid in future decisions about how to best manage Cape Coral's water resources.

EFFECTS OF STRESS ON HORMONAL PROTECTION IN
ASTROCYTES
Bridget Smith

This study will test the effects of hormones as glial cell protectors when astrocytes are stressed with various toxins including epinephrine, norepinephrine and low oxygen concentration. Hormone Replacement Therapy (HRT) is used by many women to alleviate menopausal symptoms; a combination of hormones in HRT is often present such as endogenous estrogens, progesterone, and conjugated equine estrogens (CEE) which are taken from the urine of pregnant mares. Previous studies have found positive correlations between certain estrogens such as 17β-estradiol and improved cognitive function. Others illustrated estradiol and progesterone provided a significant protective mechanism for post-ischemic stroke victims. Little is known about CEEs compare to endogenous estrogens in possible neuroprotective effects, but recent research has concluded CEE provide less protective mechanisms as compared to endogenous hormones and may exert adverse neurological health. This study will seek to determine which hormone treatment alone and hormone treatment combination will provide the best protection when neurons are induced with stress (epinephrine, norepinephrine, and low oxygen concentration). Human astrocytes will be pre-treated with the following single hormones and combination of hormones: 17α-estradiol, 17β-estradiol, estrone, equilenin, and progesterone. Astrocytes will be exposed to stressors following 24 hour post-hormonal treatment, and an MTT Assay will be used to detect cell viability. I hypothesize 17β-estradiol will provide the most glial cell

protection as a single hormone treatment, and the most significant cell protection will be the hormone combinations 17β-estradiol with estrone and 17β-estradiol with progesterone. I also hypothesize low oxygen concentration will have the greatest detrimental effects on the astrocytes as compared to epinephrine and norepinephrine. The analysis of this research will help elucidate the relative neuroprotective effects of various estrogens.

IMPLEMENTING A DNA BARCODING PIPELINE FOR THE
IDENTIFICATION AND PREVENTION OF INVASIVE PLANT
PROPAGULES ENTERING PORTS

Lauren Whitehurst

The overarching approach is two-pronged: morphological identification of mature plants (derived from intercepted seeds) and development of DNA barcoding for rapid species identification for future products, decision making, and risk assessment by regulatory bodies (Brockerhoff et al. 2014). This proposal focuses on the latter, where DNA barcoding will be developed for incoming plant tissues to be integrated into a more cohesive and informed decision-making process for USCBP and USDA-APHIS, PPQ. At this time, the US does not have a formalized, proactive, research-based program to intercept, assess, model, and develop new products for regulatory agencies. We propose this pipeline and a two-year pilot study as a proof of concept for the overarching technology development to be databased. The product (database) can be utilized by USCBP and USDA-APHIS, to adequately and rapidly identity propagules inadvertently transported with international agricultural commodities.

AIR QUALITY AND SOCIOECONOMIC BENEFIT ANALYSIS OF TREES IN COLUMBUS, GEORGIA

Kristin Youngquist

Trees provide environmental, economic and social advantages in urban areas. Knowing the amount and location of tree canopy in a municipality is an important step in quantifying these benefits. National Agriculture Imagery Program (NAIP) aerial imagery for 2010 and 2015 was classified in order to determine the spatial and temporal tree canopy for the city of Columbus. Air pollution removal rates, found through the I-Tree program, were applied to this evaluation providing an estimate of air quality benefits of the city's tree canopy. The City has 52 percent tree canopy, with over 3.7 million pounds of the six criteria air pollutants being removed annually. The percent tree canopy within the City's 53 census tracts ranges from 13 to 75 percent. Socioeconomic benefit analysis of tree canopy will be conducted using these census tracts combining tree analysis with demographics. Regression analysis will be applied to this paring to determine if socioeconomic disparity exists between areas of high versus low tree canopy.

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