The Fort Valley State University

2nd Annual Research Day
“Scholarship in Action”

Thursday, April 12, 2012
Pettigrew Center

Volume II, Spring 2012
Greetings

Dr. Josephine Davis, Interim Director
Center for Enhancing Critical Thinking

Dear Colleagues:

The Center for Enhancing Critical Thinking is pleased to sponsor this Second Annual Research Day, celebrating the theme, “Scholarship in Action.” This day is filled with excitement as all in the FVSU Community make plans to witness the intellectual genius of our colleagues in the form of their creative works and innovative research. Creativity abounds on campus, in each college, as indicated by the more than 50 presenters scheduled. Students, faculty, staff and administrators from disciplines in the sciences, mathematics and technology are joined this year by colleagues from agriculture, Fine Arts and education. A special highlight of today’s 2012 Research Day events is the Performance Panel on Emmett Till Studies.

On behalf of the members of the 2012 Research Day Committee, I am pleased to welcome you to the 2012 Research Day. We also invite you to join us on the 26th of April for the Celebration of Critical Thinking Day, a continuation of this focus on academic excellence at Fort Valley State University.

Yours truly,

Dr. Josephine Davis, Interim Director
The Center for Enhancing Critical Thinking
Greetings

Dr. Cheryl Swanier, Chair
2012 Research Day Committee

Dear Colleagues:

Research Day provides an outlet for university researchers to present their findings to the general public. We want the scholarly research that is conducted on the campus of Fort Valley State University to encourage global collaborations and to have an international impact. Knowing how to conduct research is vital to one’s academic and professional success, whether you work in industry or academia. Fort Valley State University is not just a teaching institution, but it is also an institution where research is conducted. So, it is imperative that we share the research accomplishments of both students and faculty.

Our theme is “Scholarship In Action.” Research Day promotes Fort Valley State University as an institution of academic excellence by showcasing research conducted by the university’s faculty and students through poster sessions, oral presentations, a performance panel, and an art exhibition.

I am truly excited about Research Day as we had a wonderful pre-research day symposium, “Women’s Performance of Citizenship” on March 6, 2012 at the Pettigrew Center. It is with great joy that the Research Day Committee welcomes you to Research Day 2012.

Respectfully,

Dr. Cheryl A. Swanier, Chair
Research Day Committee
Message from the Research Day Committee

Welcome to the Second Annual Research Day hosted by Fort Valley State University!

Scientists and historians at Fort Valley State University spend hours in libraries and laboratories searching for the next great discovery to advance their field of study. Today, April 12, 2012, the university’s brightest students and faculty will showcase their findings during FVSU’s second annual Research Day in the C.W. Pettigrew Center. This year’s theme is “Scholarship in Action.”

Researchers from all disciplines including biology, fine arts and the social sciences will present poster and oral presentations before peers, professors and a committee of judges. “Our primary objective is to promote Fort Valley State University as an institution of academic excellence by showcasing research conducted by the university’s faculty, staff, and students,” said Dr. Cheryl Swanier, Associate Professor of Computer Science and Research Day Committee Chair. “We want the scholarly research that is conducted on FVSU’s campus to encourage global collaborations and to have an international impact. Research does not begin when our students get to graduate school. It can begin their freshman year.”

During the event, a guest panel to include Dr. David Shapiro-Ilan and Dr. Jimmie Smith will provide tips and advice to help participants with future research endeavors. The program lineup includes a special research based performance by FVSU students and Peach County High School’s drama department entitled, “Representing Emmett Till Through Performance.” “The piece is an adaptation of a novel that fictionalizes Emmett Till’s lynching. It relates to the research Dr. Franklin Gross and I have conducted,” said Dr. Maisha Akbar, speech and theater professor and committee co-chair. “Even though [the performance] is historically based it continues to be cutting edge research based on current events.” Following presentations, an awards ceremony will be held to recognize the best research projects.

We hope everyone enjoys “Scholarship in Action!”
Scholarship In Action

8:00 – 8:30 a.m. Registration

8:30 – 9:30 a.m.

OPENING CEREMONY

Pettigrew Auditorium

Dr. Josephine Davis, Presiding
Interim Director, The Center for Enhancing Critical Thinking

Greetings .............................................................. Dr. Cheryl Swanier, Chair

Dr. Julius Scipio, Vice President for Academic Affairs

Dr. Larry Rivers, President Fort Valley State University

Occasion .....................................................................Dr. Maisha Akbar, Co-Chair

Research Presentations ............................................. Dr. Frederick McLaughlin

THE RIBBON CUTTING CEREMONY
Research Presentations

9:30 – 11:30 a.m.

POSTER SESSION

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Student Posters

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<th>Nickolas Bradley</th>
<th>Joseph Brooks</th>
<th>India Brown</th>
<th>Mariah Christian</th>
<th>Jeronda Hunt</th>
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<td>Justin Gary</td>
<td>Adina Gaskins</td>
<td>DeAundrea Hollie</td>
<td>Edward Hull</td>
<td>Maryan Muhammed</td>
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<td>Kiara Little</td>
<td>Autumn Kirsey</td>
<td>Jahaan McCleland</td>
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<td>Reginald Poole</td>
<td>Brittany Rucker</td>
<td>Kanesah Sewell</td>
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<td>Curley Williams</td>
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Faculty Posters

| Dr. Danielle Gray-Singh | Dr. Shirley Lattimore |

ORAL PRESENTATIONS

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<th>Room 110</th>
<th>Room 107</th>
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<td>Biological Sciences</td>
<td>Agriculture, Biological Sciences, Education, Fine Arts, English, Foreign Languages, Business, Mathematics and Computer Science</td>
<td>Faculty</td>
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<td>Christopher Johnson</td>
<td>Carie Daniels</td>
<td>Dr. Ojo Babatunde</td>
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<td>Keona Lawrence</td>
<td>Chavella Ingra-Roberson</td>
<td>Dr. Celia Dodd</td>
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<td>Ulysus McGhee</td>
<td>Jessica Simpson</td>
<td>Dr. George Mbata</td>
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<td>Briana Pettiford</td>
<td>Maria Glanton</td>
<td>Dr. Teresa Shakesphere</td>
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<td>Xavier Price</td>
<td>Kelechi Nwosu</td>
<td>Dr. Washella Simmons</td>
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<td>Mona Patel</td>
<td>Kelvin Robinson</td>
<td>Dr. Mahipal Singh</td>
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<td>Matute Robersy</td>
<td>Tishida Smith</td>
<td>Dr. Robert Steele</td>
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<td>Audrea Ross</td>
<td>Carie Daniels</td>
<td>Dr. Cheryl Swanier</td>
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<td>Shana Sharpe</td>
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<td>Emma Washington</td>
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<td>Aemon Weaver</td>
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<th>Art Exhibition</th>
<th>Mr. Ricky Calloway</th>
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Performance Panel .................................................................... Dr. Maisha Akbar and Dr. Franklin Gross

“Representing Emmett Till Through Performance”

Cast

Fort Valley Music Students Peach County High School Drama Department
Amanda Allen, FVSU Joseph Adkins Players

Questions and Answers .................................................................. Dr. Andrew Lee, Moderator
Luncheon and Awards Programme

Dr. Josephine Davis, Presiding

12:15 p.m.

Greetings ................................................................. Dr. Meigan Fields

Invocation................................................................. Rev. James Bumpus

Lunch

Musical Selection ...................................................... Ashley Williams, Vocalist

Joseph Thomas, Accompanist

Introduction of Panelists.............................................. Dr. Josephine Davis

Panelists

Dr. David Shapiro-Ilan, Research Entomologist, USDA-ARS, SAA

Dr. Jimmie Smith, Executive Assistant to the 16th Surgeon General

Questions and Answers
Awards Presentations

Mrs. Vicki Dubriel, Presiding

1:15 p.m.

Introduction of Judges .................................................. Dr. George Mbata

Poster Presentations ..................................................... Dr. Frederick McLaughlin

Oral Presentations .................................................................. Dr. Sherry Crocker

Recognition of Advisors ....................................................... Mrs. Vicki Dubriel

Acknowledgements ............................................................. Ms. Erica Barnes

Adjournment
RESEARCH DAY PANELIST

David Shapiro-Ilan

Dr. Shapiro-Ilan has been a Research Entomologist and Lead Scientist, USDA-ARS, Southeastern Fruit and Tree Nut Research Laboratory, Byron, GA since 2000. Over the past 11 years, Dr. Shapiro-Ilan has established himself as someone who is extending the frontiers of research in the management of agricultural pests using microbial pesticides especially entomopathogenic nematodes and fungi. Through his outstanding research and outstanding interactive skills, Dr. Shapiro-Ilan has provided leadership and vision in the development and implementation of essential tools for the management of pests especially those of pecan and peach. He also has earned a reputation for developing initiatives that conclusively provide answers to difficult scientific questions. It is under such circumstances that professional judgment as well as scientific objectivity and rigor are of utmost importance, qualities that Dr. Shapiro-Ilan has consistently demonstrated throughout his career.

Notable examples of how excellence in David’s research has brought significant improvements to agriculture and pest management science are many novel advancements to entomopathogenic nematode production and application including successful application of entomopathogenic nematodes in host cadavers.

Over the course of his career David has exemplified the qualities of award recipients. In addition to his impressive research accomplishments and publication record (over 100 refereed articles in scientific journals), David has demonstrated the unique ability to parlay his research findings into commercial products or changes in grower practice to improve pest management. He and his collaborators have been granted four patents on various technological advances and have four additional patents pending. Patenting is a key step in taking advances in microbial control from the bench and into practice. Perhaps the best example of his originality and excellence in IPM is reflected by his work with infected nematodes cadaver. David has successfully taken basic research finding on the biological superiority (an increase in nematode dispersal, infectivity, and efficacy) of infective juveniles produced in vivo relative to aqueous application.

David has mentored over 20 students from Fort Valley State University within the past 8 years and teaches aspects of insect pathology to entomology students every spring. Several of his students had won awards for presentations at meetings and some have been stimulated enough to pursue graduate studies in entomology.
Dr. Jimmie Smith, Professor of Practice, College of Health Sciences, Argosy University-Atlanta, directs the Master of Public Health and the Master of Health Services Management for the university. He also serves as adjunct professor in the Department of Community Medicine at Mercer University. He was the administrator of the Safe Schools, Healthy Students Initiative for Bibb County Schools, served as the Deputy Director of Clinical Services for the Fulton County Department of Health and Wellness, and served as the Health Services Program Supervisor for the Macon-Bibb County Health Department. Dr. Smith gained federal public health experience while serving as the Special Assistant to the Assistant Secretary for Health and for the 16th Surgeon General of the United States.

Dr. Smith graduated from Johnson C. Smith and received the M. D. Degree from Wayne State University. He completed residency training at the Southwest Georgia Family Medicine Residency Program in Albany, Georgia. He was selected as the Education Staff Fellow at the American Academy of Family Physicians (AAFP) in Kansas City, Missouri. He earned the Master of Public Health Degree in Environmental Health from Fort Valley State University.

Dr. Smith has extensive experiences in public health policy and research related to general family medicine, public health policy and administration (federal and local), minority health, and health equity and disparities issues.
FORT VALLEY STATE UNIVERSITY RESEARCH DAY 2012
Thursday, April 12, 2012

Student Oral Presentations

O1. Daniels, Carie
Fort Valley State University

Synthesis of Eight Coordinate Iron Complexes
The most common coordination numbers for first row transition metals are four, five, and six. Coordination numbers three, seven, and eight are rarely observed. Although the coordination number eight is said to be the least abundant of all transition metal complexes, stable eight coordinate Iron complexes have been synthesized and characterized. Different procedures were tried in order to find the best way to synthesize the Iron complexes. The synthesis of these complexes was very dependent on the synthesis of a specific ligand. The chemistry of these eight coordinate Iron complexes is of interest because of their biological relevance and also because of the presence of iron and unusual coordination numbers that are found in catalytic systems.

O2. Hicks, Donovan
Fort Valley State University

An Illustrative Study of the Sonatas of the Baroque Era
This musical piece, entitled “4 Sonate,” was composed by J.S. Bach. This sonata was chosen as an object of study because it typifies the Baroque-style sonatas of the era (1600-1750). In this context, “sonata” literally means a piece being played as opposed to “cantata,” a piece being sung. The forms of sonatas around the Classical Era contained different, well organized sections that were tied together with modulating transitions. In contrast, a typical Baroque style sonata consists of an introduction, a fugue-like allegro, a cantabile movement, and a finale. This study focuses on the allegro section of a Baroque sonata to illustrate the examples of sequential patterning.

O3. Ingram-Roberson, Chavella
Fort Valley State University

Preparing Organic Molecules with Planar Geometry for the Modification of Carbon Nanotubes
Through the preparation of organic molecules with planar geometry, the surface of a carbon nanotube can be modified to accept the interaction of the molecules. This modification of the carbon nanotube is done by using the smallest interaction. Different forms of Imidazole were produced to show that the simplest form of polymerization is made up of fused aromatic rings. This research shows that this interaction causes the carbon nanotube to be stronger because of the π π stacking of the aromatic rings. The π π stacking will lead the modified carbon nanotubes to be produced on an industrial size scale having a super mechanical strength. Therefore the carbon nanotubes will have the ability to assist in biomedical applications, and other applications such as in electronics or those useful to the Department of Defense.
O4.  Johnson, Christopher  
Fort Valley State University

**The Identification of Possible Isoforms of the Nasal Embryonic Luteinizing Hormone Releasing Hormone**

Nelf mutations can be associated with various diseases including Kallman syndrome and idiopathic hypogonadotropic hypogonadism. Previous studies have also shown that the reduction of this gene will lead to a reduction in olfactory axon outgrowth and a decrease of LHRH neurons out of nasal tissue. The objective of this experiment was the identification of the presence of isoforms of the Nelf gene or Nasal Embryonic LHRH Factor. Even though little is known about Nelf, previous studies show that Nelf is expressed in luteinizing hormone releasing hormone (LHRH) cells of both the Central and Peripheral Nervous System. LHRH cells perform embryonic migration from the nasal area along olfactory neurons into the brain. The hypothesis for this experiment was that there will be multiple isoforms of the Nelf gene. Both Kallman syndrome and idiopathic hypogonadotropic hypogonadism are caused by a deficiency of gonadotrophin-releasing hormone which is released from the Hypothalamus. Using various forms of PCR, gel electrophoresis, and bacterial media; this experiment showed the presence of several isoforms of the Nelf gene. Even though more than one isoform was found, it remains unknown whether these isoforms will have impaired functionality or any function at all.

O5.  Lawrence, Keona  
Fort Valley State University  
Sarwan Dhir, PhD., Fort Valley State University  
Kathie Nicholson, Amit Dhingra, PhD., Washington State University

**Optimizing Micropropagation in Vitis Vinifera**

Vitis vinifera, better known as grape vine, is known to have advantageous medicinal properties. To help with research and breeding programs, dwarf varieties of Vitis vinifera ‘Pixie’ was developed as a model system for research, investigating protocols for regeneration and transformation. The objective of this study was to increase the regeneration and genetic transformation rates. Basic micropropagation on Pixie and Chardonnay, and Agrobacterium mediated transformation was tested in Pixie. Results show that the expression of GUS (β-glucuronidase) in Pixie was indicative of genetic transformation. Direct shoot regeneration of chardonnay explants was a success, although the survival of plantlets is of great concern.
O6. Matute, Robersy
Fort Valley State University

Cues Used by Habrobracon Hebetor (Hymenoptera: Braconidae) to Locate Host
Among all stored-product moth pests the Indianmeal moth, Plodia interpunctella (Hübner) (Lepidoptera: Pyralidae), is especially important in the US and worldwide. P. interpunctella is a pest in milling machinery and other food processing plants, warehouses, bakeries, and it contributes significantly to losses caused by insects of stored commodities, particularly stored peanuts, stored cereals and processed food. The parasitoid, Habrobracon hebetor (Say) is a well-known as a useful natural enemy of Pyralid moths of stored grains and grain products, and a useful tool in environmental compatible procedures for managing moth pest populations in stored grains. Many parasitoids are known to use semiochemicals emanating from their hosts, or host’s habitat as cues to locate hosts. It is hypothesized that semiochemical cues used by the parasitoid to locate the larval host emanate from host, hosts’ food or habitat. The role of semiochemicals in host location by the parasitoid was investigated in Y-tube and four-way olfactometers, by assaying responses to stimuli associated with the Indianmeal Moth, Plodia interpunctella. Orientation of mated parasitoid females was measured in response to the following stimuli: Indianmeal moth sex pheromones, hexane extracts of residue of the rearing medium, female adults or larvae of Indianmeal moth. All stimuli elicited significantly better responses than those to blank controls. Female parasitoids that had not been previously exposed to Indianmeal moth larvae (naïve) had a shorter latency period and response time than those that had been previously exposed to moth larvae (experienced). Odors emanating from life moth larvae elicited the strongest responses. Comparison of responses in a four-way olfactometer when completed will determine which of the stimuli or combinations thereof will offer the greatest attraction to both naïve and experienced parasitoid.

O7. McGhee, Ulysius, Fort Valley State University
Puthiyaparambil Josekutty, Penn State University- Harrisburg

Effect of Genotypes on In Vitro Propagation of Jatropha Curcas
Jatropha (Jatropha curcas L., Euphorbiaceae) is a drought tolerant, nonfood, biodiesel crop widely grown in the tropical and sub-tropical regions of the world. Cold tolerance can be introduced to Jatropha through genetic engineering with cold binding factors (e. g. CBF3). An efficient in vitro regeneration system is essential to develop cold tolerant J. curcas through genetic transformation. We studied the in vitro regeneration potential of 10 genotypes of J. curcas. Only 4/10 genotypes regenerated directly from leaf explants and the regeneration rate varied between 20%-60% among these genotypes. Callus induction and in vitro regeneration of J. curcas are genotype dependent.
O8. *Nwsou, Keleechi and Maria Glanton*  
Fort Valley State University

**Environmental Effects on The Teaching/Learning Processes**  
Teaching and learning are not restricted to classroom locales. Learning can occur outside the classroom in such settings as basketball courts, the karate dojo, and in ballet ballrooms. This study analyzed the effects of the teaching/learning setting on a student’s behavior or attitude towards learning. Results show that the teaching/learning phenomenon is a complex experience and other factors, such as the student’s disposition, socio-cultural background, and teacher’s disposition are equally influential to the teaching/learning process.

O9. *Patel, Mona*  
Fort Valley State University

**Determination of Acids in Grape Juice by HPLC**  
This research describes the separation of 100% grape juice by High Performance Liquid Chromatography (HPLC). Optimization of the separation and identification of the acids on the chromatogram will be discussed. Separation was performed using a Shimadzu HPLC equipped with a C18 column and an optical detector monitoring at 292 nm. All solutions were made using a pH 5.0 phosphate buffer. The separation method was achieved using a gradient elution of methanol, water and phosphate buffer.
O10. Pettiford, Briana
Fort Valley State University

Regulation of Populations of the Ladybeetle, Harmonia Oxyridis, Byt Mite, Coccipolipus Hippodamiae in Peach Orchards

Regulation of populations of the ladybeetle, Harmonia axyridis, by the mite, Coccipolipus hippodamiae in peach orchards Briana Pettiford1, Ted Cottrell2 and George N. Mbata1The lady beetle, Harmonia axyridis, is a natural enemy of several insect pests of crops. Incidentally, H. axyridis has large populations and is already attained a pest status in many areas including homes, crop farms especially peach orchards. This particular species of ladybeetles has natural enemies, which include pathogens and predators. The mite, Coccipolipus hippodamiae, which is predator of this ladybeetle is sexually transmitted has been found to generate mortality among the populations of H. axyridis. The reason for this research was to see if ladybeetles in the orchard population were infected by the mites. The hypothesis we are investigating is that the mite, C. hippodamiae, will be found infesting H. axyridis and will be able to regulate the populations of H. axyridis in peach orchard. The methodology for this study involved collecting the ladybeetles with sweep nets. Following the collection of H. axyridis, each beetle was frozen, then transferred into a vial of ethanol, and examined for mites under a dissecting microscope. Examined specimens of H. axyridis were dissected and sexed in order to determine if the beetles were of the overwintering or spring populations. Results showed that 240 ladybeetles were the over-wintering population and 62 were the spring population. The over-wintering population had 1 male ladybeetle infested with mites, while the spring population had 4 male ladybeetles infested with mite. In addition, H. axyridis infested with mites had also Hesperomyces virescens, which is a sexually transmitted disease of ladybeetles. It is probable that more mites were found on the spring population compared to than the over-wintering individuals because ladybeetles undergo reproductive diapauses as adults. Future studies will involve carrying out this study in several seasons to determine if mite infestation of the ladybeetle will be intensifying during certain seasons.

O11. Price, Xavier, Fort Valley State University
Yechun Wang, Oliver Yu, Donald Danforth Plant Science Center, St. Louis, MO

Metabolic Engineering of the Fusion Protein in Yarrowia Lipolytica

Resveratrol is a polyphenolic compound produced by a few higher plants, such as berries, peanuts and eucalyptus in response to outside stresses. This study focused on the viability of the highly osmotic resistant yeast Yarrowia lipolytica and the functionality of the fusion protein {4CL::STS} in producing resveratrol. We hypothesized that it would produce resveratrol in amounts that exceeded prior quantities obtained in other microorganisms. Two strains were produced for the experiment. It was concluded that Y. lipolytica is not a fit host for mass production of resveratrol.
O12. Robinson, Kelvin  
Fort Valley State University  

Music in the Baroque Period  
Allegro Spiritoso is a movement taken from Sonata No. 5 in D minor. Originally it is written for a solo violin by a French composer—Jean Baptiste Senaille in the Baroque period. The time period of the baroque is 1600 to 1750. During the Baroque period, audiences began to hear the early development of tonality. Composers and performers used more elaborate musical ornamentation, made changes in musical notation, and developed new instrumental playing techniques. This study of these aforementioned techniques is presented with the music elements of sequences, ornamentation, and contrasts in loud and soft dynamic levels.

O13. Ross, Audrea  
Fort Valley State University  

CO2 Release in the Indianmeal Moth: The Impact of Nematode Infection and Hymenoptera Parasitism  
The Indian meal moth, Plodia interpunctella, a major pest of stored grains, peanuts and other food products is also used in studying the interactions between insect populations and their natural enemies. Two biocontrol agents that offer potential as environmentally sound pest control solutions for P. interpunctella include the entomopathogenic nematode, Heterorhabditis indica and the hymenopteran parasitoid, Habrobracon hebetor. To develop effective pest management strategies, it is important to elucidate the interactions between these two biocontrol agents. In a prior study, differential infection of H. indica was observed in parasitized vs. non-parasitized hosts; specifically, the nematode showed a preference for infecting P. interpunctella that were parasitized with H. hebetor. One hypothesis for the preferential infection was that parasitized hosts are more attractive to nematodes because they emit more CO2 than nonparasitized hosts (nematodes are known to be attracted to CO2. This hypothesis was tested by measuring the CO2 release in four treatments: 1) healthy P. interpunctella, 2) P. interpunctella with nematodes only, 3) parasitized P. interpunctella (without nematodes), and 4) P. interpunctella with nematodes and parasitoids. CO2 was measured 1, 2, 3, and 4 days after exposure to nematodes. On all sample dates, the level of CO2 released was higher in non-parasitized hosts than parasitized hosts. Additionally, CO2 release was higher in nematode-infected hosts than non-infected hosts in the first two days post-inoculation (which corresponds to the growth phase of the nematode’s symbiotic bacteria). Thus, the hypothesis was rejected, i.e., CO2 release does not appear to account for preferential infection by H. indica in parasitized hosts. An alternative hypothesis is that preferential infection is due to a suppressed immune system in the parasitized hosts; this hypothesis is currently being investigated.
O14. Sharpe, Shanah  
Fort Valley State University

**Studying the Effect of Bisphenol A on Breast Cancer Cell Growth With Mathematical Models**

Bisphenol A (BPA) is an environmental estrogen used in the production of polycarbonate plastics and epoxy resins in many consumer products. In this study, mathematical models that describe the growth of a population of the human breast cancer cells in the presence and absence of BPA are considered. The actual data of the human breast cancer cell growth with and without the addition of BPA was obtained by seeding a certain number of cells to 96-well plates and measuring MTT activity in the cells over consecutive seven days. With the actual data, parameters of the models are identified by using a numerical method and the least square method along with a computer programming language. The behavior of the mathematical models described by nonlinear differential equations is analyzed. The prediction of the growth of the breast cancer cell population in the presence of BPA is performed.

O15. Simpson, Jessica  
Fort Valley State University

**Metal Complexes in Fluorescence Sensing of Arsenic (III)**

In this study, a real time methodology for detecting arsenic III in the environment was attempted to be developed. This aspect of measure is important for the principle of detecting metal pollutants present in the environment, particularly water sources in this case. Today elemental arsenic exist in the environment in oxidation states (III) and (V) with As (III) posing a major health threat due to its high level of toxicity. Different techniques including colorimetry, spectrometry, and electrochemistry are commonly used for arsenic sensing. Test results from these methods may take weeks depending on certain factors such as selectivity and concentration. In contrast to this, fluorescence detection has a number of benefits with high sensitivity and selectivity over other pollutants (Cd, Hg, Pb, etc.) being primary. To date, arsenic has been detected using substances that are only organic soluble. For potential sensing in drinking water sources this poses a dilemma. The use of metal complexes in the sensing of arsenic (III) is a promising methodology that would allow for the detection of the pollutant in moist environments. Upon contact with the poisonous element displacement of a metal will take place and as a result turn on the fluorophore. Fluorescence occurs as the outcome. To achieve this, the metal complex, (ZnF2), was synthesized by reacting organic compound, (F2), with a zinc salt under anaerobic conditions. Qualitative characterization of the final product indicates a mixture of both unreacted F2 and ZnF2. Qualitative testing suggests that there is a need for the mixture of the two compounds.
A Pascal-Type Triangle Characterizing Twin Primes

The purpose of this research is to dissect every Lemma, Theorem and Proof and to interpret the proof to readers. Various tools will be utilized to develop a clear understanding of characterizing twin primes. The following will be addressed: Lemma One states that: Let p be an odd prime properly dividing either $2k - 1$ or $2k + 1$. Then p does not divide the binomial coefficient $\binom{k + \frac{p-2}{2}}{p-2}$. Theorem One, which states that: All entries in the above triangle are integers, $a(k,s)$ belonging to N whenever $k \geq 1$ and $0 \leq s \leq k$. Theorem Two: The entries in the kth row of the number triangle (above) are divisible by $2k-1$ with exactly one exception and are divisible by $2k+1$ with exactly one exception if and only if $(2k-1,2k+1)$ is a pair of twin primes. Next, I will try to dissect Lemma Two: which says that, the polynomial sequence $Q_k(x)$ satisfies $t \frac{1+(6+x)t+t^2}{(1-(2+x)t+t^2)^2} = \sum_{k=1}^{\infty} Q_k(x) t^k$. Theorem Three: which says, The number triangle whose kth row consists of the numbers, $b(k,s) = \binom{k+s}{2s} \frac{2k+1}{2s+1} (0 \leq s \leq k)$ characterizes the primes in the following sense: the entries in the kth row are divisible by $2k+1$ with exactly one exception if and only if $2k+1$ is prime.

Computational Study of the Electronic Structure of a Porphyrin-C20 Charge Transfer Complex

Novel nanostructures are currently being studied for future use in the development and improvement of photovoltaic materials. The present study explores the electronic structure of a C20 fullerene complexed with a tetraphenylporphyrin (1). The interacting monomers and complexes were optimized using Hartree-Fock, B3LYP, and PBE1PBE with the largest basis set used being 6-31G(d). Vibrational frequencies were calculated for the monomers as well as complexes to verify that the structures were minima on the potential energy surface. The stable fullerene-porphyrin complex has a total energy of -2662.0446 hartrees where the porphyrin acts as the electron donor and the fullerene acts as the acceptor. Additional results of the study will be presented.
O18. \textit{Weaver, Aemon} \\
Fort Valley State University

\textbf{The Effects of Ultraviolet Radiation on Escherichia coli: A Demonstration of the Ames Test}

To demonstrate the Ames test (Ames, 1973), \textit{Escherichia coli} was exposed to ultraviolet A (320 - 400 nm) and ultraviolet B (280 - 320 nm) radiation in an effort to find the lethal dosage at which 50 percent of a population was killed (the LD 50). A 10-3 concentration of \textit{E. coli} (obtained by serial dilution) was found most effective for colony counts. A 24 hour broth culture was used to inoculate test sets onto plates of nutrient agar. The plates were exposed in two minute intervals for up to thirty minutes to the UVA and the UVB radiation. These plates were incubated for 24, 48, and 72 hours to determine at which exposure the LD 50 occurred. The data from plate counts was then used to suggest an LD 50 pattern seen in the \textit{E. coli}, which in turn can relate to how these patterns of UV exposure might be expressed as a factor in causing skin cancer in humans.

O19. \textit{White, Oberziner} \\
Fort Valley State University

\textbf{Suppressor Analysis of a Mutation in Histone H2A}

Histones are the most abundant proteins in chromatin and associate with DNA to form the nucleosome. The four basic types of histones are as follows: H2A, H2B, H3, and H4. Studies have shown that chromosome segregation dilemmas result from the mutation in the H2A histone due to attachment challenges of the mitotic spindle fibers to the kinetochore. The \textit{hta1-300} allele contains a point mutation that causes glycine to change to aspartic acid at the 19th position of the H2A histone. We hypothesized that there may be a gene, other than the wild type, which would suppress the abnormal phenotypes. We used \textit{Saccharomyces cerevisiae} (\textit{S. cerevisiae}) as a model to explore the yeast genome for a suppressor gene. Strain IPY 152, which was used in this study. To determine the gene that suppresses the abnormal phenotypes, plasmids (library) were amplified and isolated from \textit{Escherichia coli} strain XL10-Gold and followed by transformation. Our screens revealed fifteen candidates that may have the ability to suppress the observed abnormal phenotypes.
O20.

Wilkerson, Montel
Fort Valley State University

The Environmental Effects of Hazardous Waste on the Development of Potentially Antibiotic Resistant Bacteria

Antibiotics and bacteria resistant to them have been found in environmental compartments like soil, ground water, and surface water. There is a steady increasing concern about the growing resistance of pathogenic bacteria in the environment and the effects they may have. My hypothesis was that areas near Fort Valley’s Superfund Site were still contaminated with arsenic and possibly contained antibiotic resistant bacteria. Antibiotic resistant bacteria are a type of drug resistance when a microorganism is able to survive exposure to an antibiotic. If a bacterium carries several resistance genes, it is called multi-resistant or informally super bacterium. Some things that may cause this type of bacteria to come about are chemicals from a factory being spilled on the ground creating a superfund site. Seeping into the soil, the chemicals would mutate the bacteria already living in the soil transforming them into antibiotic resistant bacteria. To attain samples of this soil, Fort Valley, Georgia’s superfund site was used. A superfund site is a site where toxic wastes have been dumped and the Environmental Protection Agency (EPA) has designated them to be cleaned up. Soil samples close by the superfund site was used to create media using Nutrient Agar for the bacteria in the soil to grow on. The soil was weighed and samples sent to a lab to test the hypothesis. The results indicated that the clostridium from the soil (gram positive) and the Klebsiella pneumonia from the pond (gram negative) were multiple antibiotic resistant; the lab results were assumed to point toward the soil samples being contaminated with lead and/or arsenic.
**Student Poster Presentations**

**P1.**  
Atkinson, Felicia  
Fort Valley State University  

**Identification of Listeria Genomic Island 1 in Listeria Species**  
Listeria is a gram positive bacterium. The six species of this genus include Listeria monocytogenes, Listeria ivanovii, Listeria seeligeri, Listeria innocua, Listeria welshimeri, and Listeria grayi. The natural habitat of Listeria is thought to be the surface layer of soil rich in decaying plant matter. From this habitat, they gain access to the vertebrate host via the oral route using contaminated food as a vehicle. The genus Listeria contains the two pathogenic species L. monocytogenes and L. ivanovii which cause listeriosis, an opportunistic infection of humans and animals involving severe clinical manifestations such as meningoencephalitis, abortion and septicemia. As in other bacterial pathogens, listerial virulence genes are organized into discrete genetic islands. One of these islands plays a central role in Listeria pathogenesis, as it carries virulence genes essential for intracellular parasitism. For each Listeria strain, 1.5 ml of cells was pelleted by centrifugation (13,000 rpm for 10 minutes). For the isolation of gDNA, the traditional boiling method was used. The DNA samples were kept at -20ºC until used. For all PCR identification, 4 primer sequences were used. All PCR reactions were performed in a final volume of 25 μl with 1 μl of extracted DNA template. Of the 300 samples that underwent PCR amplification, it was determined that only three contained three of the four primer sequences.

**P2.**  
Bradley, Nickolas  
Fort Valley State University  

**Effect of Molecular Crowding on Protein Structure and Function**  
Fibroblast Growth Factors (FGFs) are a heparin binding growth factors that possesses broad mitogenic and angiogenic activities. FGFs are involved in diverse biological processes, such as wound healing, tumor growth and development of nervous system. The improper functioning of FGFs has been linked to many life threatening diseases like, cancer. In order to retain the proper functioning of FGF, a more stable environment is needed. Various researches have been going on the in vitro stability studies of pure FGF. But in order to mimic the exact intracellular environment as that of in vivo studies, similar should be provided. In this study the in vivo environment is simulated with macromolecular crowding agent such as ficoll. Ficoll is a neutral, highly branched, high-mass, hydrophilic polysaccharide having radii ranging from 2-7 nm and readily soluble in aqueous solutions. It is prepared by reaction of a polysaccharide with epichlorohydrin. In this project the effects of molecular crowding on protein (FGF) stability was tested in two ways; by testing the enzymatic activity of the trypsin on FGF, and by testing FGF’s thermal stability using steady state fluorescence.
P3.  
Brooks, Joseph, Fort Valley State University  
Cheryl A. Swanier, EdD, PhD Candidate, Fort Valley State University  

**Delving Into the R.O.S. (Robotic Operating System)**  
The purpose of this research is to delve into the world of robotics and to give insight to programming a robot. Writing software is difficult. The robotics field is steadily growing due to innovations in robotics. Different types of robots can have varying hardware which results in code being non-reusable. The ROS takes a big step towards improvement in these areas. In conclusion, The ROS has an open-ended design that can be extended by others to build robot software systems which can be useful to hardware platforms.

P4.  
Brown, India  
India Brown, Alicia Williams, S. K. Dhir, Fort Valley State University  

**Valeria Regeneration and Agrobacterium-Mediated Genetic Transformation**  
Valeriana officinalis is a medicinal plant. The goal was to establish a simple method for transient plant regeneration. Leaf explants from one-month-old grown plants were infected by A. tumefaciens carrying GUS and nptII genes. The infected leaf explants were incubated for three days. The transformability was determined as the percentage of leaf explants expressing the GUS gene. The results based on transient GUS gene expression of explants suggested that one-month-old leaf explants inoculated for 60 minutes with 0.4 OD and 150 m acetosyringone and co-cultivated for 3-4 days in MS medium with 2, 4-D showed 80-90% transformation efficiency.

P5.  
Cater, Nadine  
Fort Valley State University  

**Experiencing Goat Milk Ice Cream**  
Studies have shown that goat milk is 13% higher in calcium than cow’s milk. Goat’s milk has 47% more vitamin A and less lactose than cow’s milk. Unfortunately, these benefits are overshadowed by the general population’s unfamiliarity with goat milk. Most people are not willing to try something that is not mainstream. This behavior can produce an automatic dislike for an untried product. Participants completed a survey on the nutritional values of goat’s milk and to compare it with cow’s milk.
P6. Christian, Mariah, Fort Valley State University
Mariah Christian, Porscha Bumpus, S. K. Dhir, Fort Valley State University

**Somatic Embryogenesis and Genetic Transformation of Stevia via Bombardment**
Stevia rebaudiana is a perennial shrub and is known to be a no calorie with 30 times sweeter than sugar. The objectives of this study were to develop the effective protocol for plant regeneration via somatic embryogenesis and to introduce β-glucuronidase (GUS) or Green Fluorescent Protein (GFP) genes to evaluate stable gene expression using microprojectile bombardment. To optimize the condition for gene expression, leaf segments and embryogenic calli were bombarded with 1.0 μM gold particle coated with a plasmid DNA vector containing a GUS or GFP reporter gene. Embryos at various developmental stages expressing GUS or GFP genes were recovered.

P7. Clark, Angela, Fort Valley State University
Amit Dhingra, Ph.D., Derick Jiwan, Ph.D., Christopher Vincent, Washington State University

**Synthesizing Carotenoid Pathway in Yellow Wonder**
Blindness affects more than 22 million people by the age 40. The dietary intake of provitamin A carotenoids is related to lower prevalence of agerelated blindness. By accumulating a diet rich in carotenoids, we could decrease cataract or macular degeneration, which ultimately causes blindness. The aim of this project was to enhance the carotenoid content in Rosaceae crops. In conclusion, we will have to engineer the missing carotenoid biosynthesis genes in fruit tissues to increase the carotenoid production in Rosaceae fruits. In order to ingress the cloned genes in strawberry; we utilized an efficient strawberry regeneration and transformation system.

P8. Gary, Justin
Fort Valley State University

**Does Social Economic Status Translate to Ineffective Teaching?**
Children in low income areas do not succeed at competitive levels with the more economically advantaged counterparts. This lack of success is especially evident in the areas of science and math. Are these children in low income rural areas not learning because of ineffective teaching or are there environmental factors? This study examined factors which include but are not limited to ineffective parenting, ineffective teaching, and society telling them that school and learning may not be that important.
P9. Gaskins, Adina, Fort Valley State University  
John Heath, Ph.D., Tuskegee University

Flicker Fusion
Flicker fusion is defined as the frequency at which an intermittent light stimulus appears to be completely steady to the observer (Long Evans rats). The object of the experiment was to train the rats in the shortest amount of time with the least amount of correction trials and to get the rats’ fixed ratio as high as 10 at the end of the training phase. The goal was for each rat to get a minimum of 80% correct responses during a session. Two of the 10 rats reached a fixed ratio of 10 and 9.

P10. Hollie, DeAundrea  
Fort Valley State University

What Should I Believe: Darwin or Genesis?
Despite the vast understandings of scientists and religions, little is known about the truth of creationism. Is creationism a theory or part of a religion? And should creationism be taught within the public school system? These are difficult questions to answer. Epperson v. the State of Arkansas is a case that the Supreme Court ruled forbidding the teaching of creationism is unconstitutional. This court decision legalized the teaching of creationism. However, creationism should be forbidden because it is actually the teaching of a religious doctrine, which violates the first amendment.

P11. Hull, Edward, Fort Valley State University  
Cheryl A. Swanier, Ed.D, Phd Candidate, Fort Valley State University

Is It GUI Enough?: Importance of Graphical Interfaces of Operating Systems.
The purpose of this research was to gain an insight into the importance of an operating system’s graphical interface. With today’s technology, the operating system, more specifically the graphical user interface, or GUI, is a huge factor in the review and acceptance of a new operating system. The usability and functionality of the operating system plays a major role in how consumers receive the system. In many of today’s operating systems, the usability of operating systems is determined by the user’s response. In this research, this study examined the different operating systems. Based on the data obtained, the most important aspects of a successful operating system were determined.
P12. Hunt, Jeronda, Fort Valley State University
Keeona Lawrence, S. K. Dhir, Fort Valley State University

**Agrobacterium Tumefaciensmediated Genetic Transformation in Alfalfa**

Medicago sativa L. is a flowering legume of the pea family Fabacea. The goal of this study was to transform alfalfa leaf explants using Agrobacterium tumefaciens. It was projected that by doing so, eventually an entire transformed alfalfa plant could regenerate via somatic embryogenesis. Transient and stable GUS expressions were studied in transformed explants and regenerated calli respectively. Highest transient GUS (70%) expression was observed at pH 5.8. Optical density of 0.2 was considered optimal to obtain the highest transformation rate (70-75%). We found that acetosyringone at 200mM (for GUS expression) and 150mM (for GFP expression) yielded the highest transformation.

P13. Isang Edwin
Fort Valley State University

**Effect of Moisture Content on Thermal Properties of Selected Biomass Feedstocks**

Thermal conductivity, thermal diffusivity, specific heat capacity of Energy cane and Napier grass were measured at room temperature. To investigate the effect of moisture content on thermal properties, the thermal conductivity, thermal diffusivity and specific heat capacity of Energy cane were determined at five different moisture contents (3, 9, 15, 20, and 35% w.b) using a KD2 Thermal Properties Analyzer. Thermal conductivity and thermal diffusivity of Energy cane increased with the increase in moisture content. Specific heat capacity of energy cane decreased with the increase in moisture content. The gross calorific values of Energy cane and Napier grass were also determined.
Fred Hampton: The Untold Story
On December 4th, 1969, Fred Hampton was only twenty-one years old when he was shot to death in his sleep. As the Black Panther Chairman of Chicago, Illinois, Hampton did many positive things for his community, such as free breakfast programs for underprivileged children, among other efforts. He also made numerous powerful speeches about uplifting the black community. He was the FBI’s worst nightmare. The FBI felt so threatened by Fred Hampton that they put someone undercover to eventually become his “ally”. On December 4th, 1969, Fred Hampton was drugged by the undercover “ally”, and at 4:30 AM, the Chicago Police broke into his apartment, shot and killed his bodyguard, Mark Clark, and injured two others. Hampton’s pregnant girlfriend was dragged from bed and arrested. The Chicago Police defended themselves by saying that Fred Hampton and Mark Clark shot first, but later evidence proved the over 50 shots that were fired came from the Chicago Police, and only one shot came from Mark Clark. This was clearly an assassination. Why did the FBI and the local Chicago Police feel so threatened to take this young man’s life? He had enough passion to change the entire world. This study examines the question the existence as other young people in today’s society who carries a similar passion for change.

GFP Chloroplast Transformation to Study Functional Genes in Tobacco
Amit Dhingra, Ph.D., Scott Schaeffer, Washington State University
Chloroplasts are organelles found in plants that conduct photosynthesis and other biologically important processes. Chloroplast transformation involves homologous recombination of foreign genes into the chloroplast. Our hypothesis was that we could use tobacco chloroplast transformation for functional validation of chloroplast targeted proteins. Usually green fluorescent protein (GFP) is used in conjunction with chloroplast transformation because GFP retains fluorescence when fused to another protein on both the N- and C-terminal making it an attractive tag to monitor subcellular activities such as gene expression. We were able to observe chloroplast-derived expression of GFP in the resulting transgenic plants.
P16. 
McClendon, Jahaan
Fort Valley State University

The Dimensions of Bullying
In recent years the effects of bullying in schools has become a hot topic among people of all ages. The topic has become the center of many conversations whether it is on the news, among celebrities, or even among families at home. Bullying used to be just in the schools where a kid would pick on another kid. In recent years bullying has now flowed over into the world of social networking. Children are now being bullied on the internet sometimes worse than they would be in the classroom. According to bullying statistics, 1 in 3 young people have experienced cyber bullying. A survey given by bully statistics.org in 2009 shows that 20% of young people say they have been bullied in the schools. Some young people who have bullied have killed themselves also known as “bullycide” from the results of being bullied. Statistics on “bullycide” are unknown because it is often times not known what caused the person to commit suicide or it may be more than one factor. With these statistics rising, we should look at the steps to take to decrease the amount of bullying going on in and out of the schools. We should also become more aware of the signs of a young person being bullied. On the other hand, we should also take a look at what causes a bully to bully someone else.

P17. 
Melton, Shetelia, Fort Valley State University
Adelia C. Bovell- Benjamin, Peter N. Gichuhi, Tuskegee University

Evaluation of Organically and Conventionally-Grown Cowpea and Sweet Corn
Organic foods are widely perceived to be more nutritious and healthier than conventionally-grown products, and the production process is perceived to be more environmentally-friendly. The overall aim of this project was to evaluate the compositional contents of organically and conventionally-grown cowpea and sweet corn. Specifically, protein, starch, ash, fat, fiber, sugar contents, amylose:amylopectin ratio and color of conventionally and organically grown cowpeas and sweet corn were evaluated. Overall, the organic sweet corn had higher starch but lower sugar contents than those grown conventionally.
Expression of LEA Proteins in Phaseolus Vulgaris During Drought Stress

Late Embryogenesis Abundant (LEA) proteins are low molecular weight proteins formed during the late period of seed development. They are involved in protecting the plant structures from damage caused by environmental stress like dehydration or drought. With time plants have developed these survival strategies for continued changes in the environment. Drought is one of the main reasons for yield loss around the globe. Drought happens so slowly we can only see the effects like poor crop quality. Phaseolus vulgaris or common bean is an important crop worldwide making it the first choice for LEA protein research. Common beans are also the cheapest source of proteins making it very important to our diet. The LEA protein gene associated with drought tolerant plants is the PvLea3 gene. This gene belongs to Group 3 of the LEA proteins and is responsible for enriching ions during the dehydration of higher plants. The objective is to try and understand how drought stress effects the expression of the PvLea3 gene. It’s also important to identify when the gene is expressed meaning at what point in time during drought is the gene expressing its self. RNA Isolation is the first step to understanding this gene expression. Reverse Transcription to Complementary DNA (cDNA) using reverse transcriptase is the second step. Finally REAL TIME-PCR will show us if and when the gene is expressed. The expected results will be that the PvLea3 gene is present in drought-tolerant plants.

What is the Importance of DTrace?

Computers can be our best friends and also our worst enemy. Most of the time when using a computer we tend to become impatient especially when something goes wrong such as trouble shooting problems, computer crashing, or a computer virus. You don't know where the problem is or where to locate it because debugging is one of the most difficult problems known to man. This is where the DTrace software is useful. DTrace is a type of tracking device/debugger that automatically lets the user know exactly what and where the problem is. This software is part of the Solaris 10 operating system that gives the user the ability to monitor and control the behavior of the user programs and even the operating system itself.
P20.  
Rucker, Brittany, Fort Valley State University  
Harry Klee, Ph.D., University of Florida

“Don’t Refrigerate Your Tomatoes; It Just Might Knock Your Socks Off!”
Tomatoes are often stored chilled to prolong shelf-life. When this happens, much of the tomatoes’ flavor is lost. To understand the basis for the loss of flavor after chilling, we analyzed 24 heirloom and modern tomato varieties before and after chilling. Taste panels were conducted on chilled and non-chilled fruit to determine which varieties lost flavor after chilling. High levels of glucose, fructose and citric acid are important for good flavor, while high levels of malic acid are associated with poor flavor.

P21.  
Sewell, Kanesha  
Fort Valley State University

Pupillary Light Reflex: Measurement, Analysis and Potential Applications
Pupillary light reflex (PLR) refers to the pupil size changes in response to illuminance changes. The pupil is regulated by two muscles, the constrictor and dilator. Each muscle is innervated by two different subsystems of the autonomic nervous system (ANS): the parasympathetic and sympathetic nervous systems, respectively. In my test, PLR measurements were obtained by a computerized binocular pupillogram recording system that uses a green LED light at 530 nm as stimulation to the pupil. The device has two independent channels to examine PLR in each eye. A highly sensitive infrared video camera was used to capture pupil images. Data processing was conducted with custom-developed software to automatically retrieve data from the captured images. During this process a pupillogram is illustrated extracting five basic parameters needed to obtain the most accurate PLR measurements. Abnormalities in PLR are detected when any part of the PLR pathway is dysfunctional. Abnormalities of autonomic nervous interactions during pupillary actions can be an advantage in clinical ophthalmic and neurological applications such as autism spectrum disorders, homonymous hemianopia, Parinaud’s syndrome, and optic neuritis by way of diagnosis. These applications help give explanations to why PLR responses are either absent or significantly reduced in some cases due to damage of the visual cortex, the brain and optic nerves, resulting in change of PLR responses.

P22.  
Truong, Phu, Fort Valley State University  
Cheryl A. Swanier, EdD, PhD Candidate, Fort Valley State University

Embedded Operating Systems In Military and Aerospace
An operating system is a program that manages the computer hardware. However, they are many different operating systems, and some of them are only used for the specific purposes. For example, in military and aerospace, they are using the Embedded Operating System. Why are they using the embedded operating system? The answer will follow in this research.
P23. Walton, Shekia  
Fort Valley State University  

What is Dyscalculia?  
Dyscalculia is a specific learning disability in mathematics. It is a condition that affects the ability to acquire arithmetic skills. In many ways, Dyscalculia is a lot like Dyslexia, but the main differences are Dyscalculia is understudied and present in as many girls as it is boys. According to Dr. Anna Wilson (2007), about 3-6% of the world is suffering from this condition. Some symptoms of an individual suffering from Dyscalculia include having a delay counting and counting strategies and difficulties in memorizing arithmetic facts.

P24. Williams, Curley, Fort Valley State University  
Cheryl A. Swanier, EdD, Phd Candidate, Fort Valley State University  

An Input Device for Children with Severe Disabilities to Interact with the iPad  
The goal of this project was to develop a user interface which allows children with physical limitations, such as cerebral palsy, to interact with the iPad. Unfortunately, many of the existing applications like Proloquo2go and Accessible Messaging were developed based on a touch-based procedure. This interface emphasizes comfort, style, and the use of a “Swipe” motion. The challenges involved in the developing this innovative technology is discussed. It is expected that such technology will enable children with cerebral palsy or other physical limitations to expand their physical and mental capability.
Faculty Poster Presentations

P1. Gray-Singh, Danielle
Fort Valley State University

The Role of Hypothalamic-Pituitary-Gonadal Hormones in Alzheimer’s Pathophysiology
Epidemiological and biochemical studies indicate an association between hormones of the hypothalamic-pituitary-gonadal (HPG) axis and cognitive senescence. In particular, these studies indicate that changes in HPG hormones following menopause/andropause are involved in the cognitive and neuropsychological changes observed in Alzheimer’s disease (Atwood, Gray, et al., 2009). Since receptors for GnRH, LH/hCG and sex steroids are present on neuronal cells, being particularly concentrated on hippocampal neurons, we propose that these post-reproductive changes in HPG hormones modulate the biochemical, pathological and cognitive changes associated with AD. Specifically, changes in amyloid load and cognition in AβPP-transgenic mice are expected to correlate with changes in HPG hormones. By comparing the results obtained from the vehicle, leuprolide, leuprolide plus estrogen, ovariectomy, ovariectomy plus leuprolide and leuprolide-treated ovariectomized groups, our studies have revealed a significant correlation between LH/FSH and estrogen level on AβPP processing in the Swedish mutant human AβPP-transgenic mice. By comparing vehicle- with leuprolide-treated intact mice, the effects of leuprolide treatment on AβPP processing were highly visible, resulting in a forty percent reduction (p<0.001) in the most toxic form of amyloid. Our findings support the following correlation between LH modulation of AβPP processing/Aβ generation and amyloid pathology: ovariectomized animals (high LH/FSH, low sex steroids) > intact animals (moderate to high LH/FSH/sex steroids that change to high LH/FSH and low sex steroids as they move through menopause) > leuprolide-treated animals (low LH/FSH and sex steroids) = ovariectomized leuprolide with estrogen add back group (low LH/FSH and high sex steroids).

P2. Latimore, Shirley
Fort Valley State University

Impacts of Innovative Practices on Reading Achievements and Attitudes of Struggling Second Graders
A descriptive study was conducted to determine the impacts of innovative practices on reading achievement and attitudes of struggling second graders. Participants consisted of 18 African American students (7 males and 11 females) who were struggling to read. A qualitative action research design was used. Pre- and posttest data was collected over an 8-week period using quantitative research methods such as the Standardized Test for Assessment of Reading, Elementary Reading Attitudes Survey, Motivation to Read Survey, and Read Aloud Response Journals. Significant difference was found between pre-and posttest mean scores in all areas of the achievement test, surveys, and journals of participants. Results showed improvements in students’ reading achievement levels, levels of confidence, and attitudes toward reading.
Faculty Oral Presentations

O1. Babatunde, Ojo
Fort Valley State University

New Treatment Agents for Cardiovascular Disease: Design, Synthesis and Bronchodilator Activity of New Analogues of Deoxyvasicine

A series of novel trisubstituted deoxyvasicine analogs was synthesized and evaluated for bronchodilator activity \textit{in vitro} on isolated guinea-pig tracheal chain preparation, and \textit{in vivo} in anaesthetized guinea-pig. The pharmacological activity of these ligands was compared with those of isoprenaline and aminophyline. Ligands 1\text{a-d} displayed potent bronchodilator activity, and 1\text{c} potentiated the effect of aminophyline.

O2. Dood, Celia
Fort Valley State University

Manganese Potentiates Heme Oxygenase-1 in Inflammmagen Activated Microglia: Role in Regulating Inflammatory Output

Accumulating evidence suggests that overexposure to manganese (Mn) increases output of glial-derived inflammatory products which indirectly contributes to the neurotoxic effects of this essential metal. Inducible heme-oxygenase (HO-1) plays a role in the regulation of inflammation and its expression is upregulated in response to oxidative stressors, including metals and LPS. Because Mn can oxidatively affect neurons both directly and indirectly, we investigated the effect of Mn exposure on the induction of HO-1 in resting and LPS-activated microglia (N9) along with dopaminergic neurons (N27). Additionally, we investigated the mechanism of Mn-potentiated HO-1 and its role in the inflammatory response. Finally the potentiating effects of Mn on HO-1 appear to be glia-specific for Mn, LPS, and Mn+LPS did not induce HO-1 in N27 neuronal cells.
O3. **Mbata George**  
Fort Valley State University

**The Potential for Controlling Pangaeus Bilineatus (Say) Heteroptera: 'Cydniidae) Using a Combination of Entomopathogenic Microbial and an Insecticide**

About 1.08 million metric tons of peanuts are produced annually in the United States, out of which the state of Georgia produces more than forty two percent. This position of the state of Georgia as largest producer of peanuts is being threatened by a Hemipteran pest, *Pangaeus bilineatus*. *P. bilineatus* is a burrowing bug distributed throughout peanut producing region of the United States. Losses arising from the infestation of peanuts by this pest warrant a search for pest management tools that will keep populations of this pest below economically damaging level. The study described here, integrated EPN, *Heterorhabditis bacteriophora* (Oswego strain) or a fungus, *Beauveria bassiana* (GHA strain) with Chlorpyifos in the control of *P. bilineatus*. Specimens of *P. bilineatus* were collected by pulling out mature peanut plants from the soil. All treatments were applied in 2.4 ml to 30 ml (1 oz) cups with 1 insect each and 15 g sterile dry soil. Combinations of the entomopathogenic nematode and the insecticide, chlorpyifos, were found to be effective in significantly causing mortality of the borer bug compared with the nematode or insecticide alone.

O4. **Shakespeare, Teresa**  
Fort Valley State University

**The Fort Valley State University Head Start Impact Study: Pre-School Obesity Factors**

Shakespeare Tl, € Jackson G. €, Kelly K. € and Shakespeare W. s Department of Biology€ and Department of Family and Consumer Sciences$, Fort Valley State University, Fort Valley, GA. USA The Head Start Impact Study is a recent addition to decades of research on the effectiveness of Head Start to promote education and healthier lifestyles. Our objective in this study was to conduct clinical diagnostic assessments that will show the effects of a toddler’s BMI by height and weight, hemoglobin A1c (a measure that represents the average of all glucose levels in the body over a period of ninety days), and lead exposure on obesity. The study included three hundred thirtythree students from five rural area schools in four counties during the academic calendar year of 2011-2012. Health and nutritional assessments and data collected, is a part of the longterm goal for Fort Valley State University Head Start to identify as many cases of obesity in the early stages of childhood, educate the parents, and to present a holistic health approach of children, in order to prevent early onset of health problems.
O5. **Shakespeare, Teresa**  
Fort Valley State University  

**Dynamin's Role in Gap Junction Plaque Endocytosis: An Ultrastructural and Live Cell Analysis**  
Shakespeare, l€, Nickel, Bs, and Murray, Ss. Department of Biology, Fort Valley State University and Department of Cell Biology and Physiology, University of Pittsburgh, School of Medicines, Pittsburgh, PA. USA. Gap junction-mediated cell-cell communication modulates cell function in most tissues of the body. Such communication is regulated, in part, by the rate of gap junction plaque assembly and removal from the cell surface. While the assembly process has been extensively studied, much less is known about gap junction plaque disassembly. It has been established however that gap junction plaques can be removed from the cell surface by an internalization process (a unique combination of endocytosis and exocytosis, termed "endoexocytosis") which results in the formation of a cytoplasmic annular gap junction in one of two contacting cells. Both clathrin and dynamin have been demonstrated to play a role in this endoexocytotic process. To increase our knowledge of the details and molecular machinery involved in gap junction plaque endocytosis, immunocytochemical, time lapse, and quantum dot transmission electron microscopic (TEM) techniques were used to image SW-13 adrenal cells, which spontaneously internalize connexin 43 (Cx 3) gap junction plaques.

O6. **Simmons, Washella**  
Fort Valley State University  

**A Portrait of Southern Women: Jean Toomer's Tribute to Georgia Women in Cane**  
Jean Toomer’s Cane is considered to be one of the masterpieces of the Harlem Renaissance. Not only does his work reflect Southern folklore, but it particularly venerates Georgia’s rich agrarian tradition. This paper will focus on Toomer’s treatment of women in Cane. While celebrating women, some critics disapprove of Toomer’s limited portrait of Georgia women. In order to understand Toomer’s perspective on these women, one must examine his varied life experiences and his philosophy on color consciousness. Both of these aspects of his life shed light on his perspective of the South and Southern women.

O7. **Singh, Mahipal**  
Fort Valley State University  

**Can Dead Animals Be Revived Several Days After their Death?**  
Live animals have been produced recently from animal tissues preserved for decades at frozen temperatures. However, it is not clear as to how long the dead animal tissues remain viable and retains capacity to cell proliferation (prior to freezing) which can subsequently be used as nuclear donors to clone the lost animals in future. To address this issue, we have developed a primary cell culture system for animals. Using this system we tested the time and temperature limits, within which, quality cells can be obtained and preserved for hundreds of years. This technological advance will help farmers to preserve their superior animals for future or revive endangered species by cloning.
O8. Steele, Robert, Fort Valley State University
Amber Ivey, Jasmine Paul, Seydou Samake, Fort Valley State University

Prostate Testing: Hyperplasia vs Cancer
Enlargement of the prostate is a universal problem in old men. The gland is located below the bladder in front of the rectum. It is about the size of a walnut. Hyperplasia of the prostate usually starts by age 45 – 50 years. The symptoms usually start on an average by age 60 in Blacks and by age 65 in Whites. In contrast, prostate cancer generally is the second most common malignancy in humans, while skin cancer is the number one type of malignancy in humans. Studies have shown that the disease is more common in Blacks than in Whites. The intent of this study was to develop a questionnaire and collect data from a random sample of men in Middle Georgia in order to investigate the following hypothesis. There is no significant difference in the knowledge of concepts related to prostate problems in men between the ages of 18 to 54 when compared to the knowledge of prostate problems of men of ages 55 and greater. The study indicated that additional education is needed to correct some of the misconception concerning prostate hyperplasia and prostate cancer.

O9. Steele, Robert, Fort Valley State University

Piaget’s Concepts of Intellectual Development
Piaget’s theory that children move through a series of developmental stages on the way to intellectual maturity has received world-wide support over the past thirty years. The children of Switzerland, India, China, Mozambique, and the United States all appear to be going through the same sequence of developmental stages. The only difference in the intellectual development of the children of these widely diverse cultures was the age at which the child typically acquired the various conservation laws.

O10. Swanier, Cheryl, Fort Valley State University
Cheryl Seals, Auburn University

Video Games: Who Really Plays Them and How Can They Be Used in Education?
The work investigates the demographics of video game players, addresses the popularity of games and how they can be used for educational purposes. We will investigate how games are being used for educational purposes. It is often the misconception of those who do not play games, that this is just a child’s hobby or obsession. With the ready availability of gaming and devices and the popularity of playing games, this research will investigate gaming with aims at designing and developing educational games to support one of the science technology, engineering and mathematics (STEM) fields.
Faculty Performance Presentation

P1. Akbar, Maisha, Fort Valley State University
Gross, Franklin, Fort Valley State University

“Examining Emmett Till through Performance”
This performance panel features cultural production inspired by the story of Emmett Till, a Chicago teenager who, in 1955, was tortured and murdered while visiting Mississippi relatives. Dr. Gross will perform, "To Live and Be Strong" that features a FVSU student singer. Dr. Gross' most recently composed choral selection, "Poem for Emmett Till," also featuring FVSU students, is woven into the play's opening. Dr. Akbar’s adaptation, “Saving White Face,”(SWF) is based on Bebe Moore Campbell’s novel, Your Blues Aint Like Mine (1992) which fictionalizes Emmett Till's murder. SWF examines lynching as an everyday Western hegemonic act that is made up of discursive as well as material practices. As cultural performance, lynching functions to establish and maintain a cultural fiction, white supremacy. This lynching drama features a FVSU as well as Peach Co. High School drama students.

Faculty Exhibition Presentation

E1. Calloway, Ricky
Fort Valley State University

Artist’s Statement: Spiritual Enlightenment from Life’s Journeys and Experiences
Everyone travels different paths in life. Therefore, my visual art reflects my journeys and experiences. Growing up in the southeastern region of America had a profound impact upon my outlook. Because of these influences, my visual art mainly depicts folk images of ordinary African Americans going about their daily activities. This exhibit also includes portraits of individuals who I have met over the years that possess great strength of character. Finally, a recurring theme throughout this exhibition is depicting a complex history related to black African civilizations throughout antiquity.
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LaKeia Whitfield

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