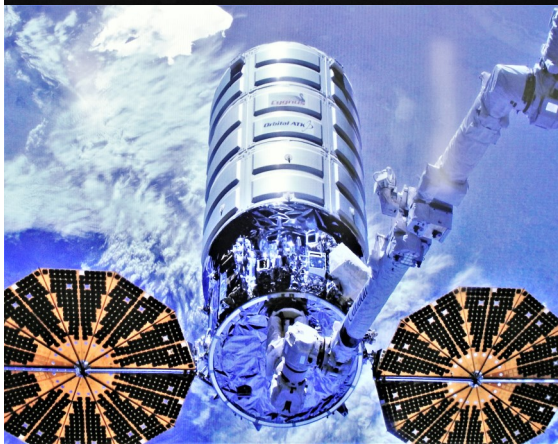


University of Maryland Eastern Shore 2018 Graduate Education Week



# 4th Graduate Education Week and 9th Annual Regional Research Symposium Program



## School of Graduate Studies

“Promoting Research through Innovation, Technology and Creativity”



April 16, 2018 – April 20, 2018  
Princess Anne, Maryland



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**Division of Academic Affairs, University of Maryland Eastern Shore**

**Dr. Juliette B. Bell**



**President**

**Dr. Kimberly Whitehead**



Interim Provost and  
Vice President  
for Academic Affairs

**Dr. Latasha Wade**



Interim Vice Provost  
for Academic Affairs



Assistant Vice President  
for Academic Affairs

**Dr. Lakeisha Harris**



Interim Dean,  
School of Graduate Studies

**Dr. Moses Kairo**



Dean, School of Agricultural  
& Natural Sciences

**Dr. Kate Brown**



Acting Dean, School of  
Business & Technology

**Dr. Chris Harrington**



Dean, School of Education,  
Social Sciences & The Arts

**Dr. Rondall E. Allen**



Dean, School of Pharmacy  
& Health Professions

**Ms. Adrienne Webber**



Dean, Library Services

University of Maryland Eastern Shore 2018 Graduate Education Week

Letter of invitation



**DIVISION of ACADEMIC AFFAIRS**  
**School of Graduate Studies**

Call for Abstracts  
University of Maryland Eastern Shore  
Fourth Annual Graduate Education Week  
Ninth Annual Graduate School Regional Research Symposium  
Student Services Building Ballroom  
April 17, 2018  
8:00 a.m. - 5:00 p.m.

The School of Graduate Studies at The University of Maryland Eastern Shore is pleased to announce its 4<sup>th</sup> annual Graduate Education Week and 9<sup>th</sup> Annual Regional Research Symposium to be held on Tuesday, April 17, 2018. The theme of this year's symposium is:

**“Promoting Research through Innovation, Technology, and Creativity”.**

We invite edited abstracts of no more than 250 words excluding the title, authors, and affiliation. Submission guidelines are provided on the registration website at [www.umes.edu/Symposium2018](http://www.umes.edu/Symposium2018). Abstracts submitted in incorrect format will be rejected. The deadline for submission of abstracts is March 1, 2018.

The registration for the symposium may be completed online at [www.umes.edu/Symposium/2018](http://www.umes.edu/Symposium/2018)

This year's symposium will highlight Graduate and Undergraduate education and include an interdisciplinary research and innovation theme. We invite proposals from all disciplines, including STEM, Social Sciences, Fine Arts, etc.

We look forward to your participation this year. If you need assistance with registration or abstract submission, please contact Mrs. Angela Young ([adyoung@umes.edu](mailto:adyoung@umes.edu))

Respectfully,

A handwritten signature in cursive script that reads "LaKeisha L. Harris".

LaKeisha L. Harris, Ph.D., CRC  
Interim Dean



**MESSAGE FROM  
DR. LAKEISHA HARRIS**



**INTERIM DEAN, SCHOOL OF GRADUATE STUDIES**

Greetings and welcome to the 4<sup>th</sup> Annual Graduate Education Week and the 9<sup>th</sup> Annual UMES Regional Research Symposium! We are excited to host faculty, staff, and students from across the great state of Maryland who have come to UMES to participate in the presentations of faculty and students who are eager to share their research.

This year the symposium's theme is "Advancing and Celebrating Graduate Education and Research to Promote Value to the State of Maryland and Beyond". As you navigate the poster sessions and listen to the oral presentations, you will see that faculty and students are engaged in research studies and ideas that are consistent with this year's theme. We are grateful to our participating researchers who are engaged in research that will surely contribute to advances in natural sciences, education, social sciences, and health professions.

These are exciting times for graduate education and research and I thank each of you for your support of our faculty and student researchers.

Enjoy the research symposium, take a tour of our spacious campus, and feel free to explore the town the Princess Anne.

We look forward to a great day of activities.



## SPONSORS

Office of the President

Office of the Provost and Vice President of Academic Affairs

Institutional Advancement

Division of Student Affairs

School of Graduate Studies

School of Agricultural and Natural Sciences

School of Business and Technology

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School of Pharmacy and Health Professions

Frederick Douglas Library

Title III

Living Marine Resources Cooperative Science Center



School of Graduate Studies  
DIVISION of ACADEMIC AFFAIRS

**Regional Research Symposium 2018**  
Student Services Center

“PROMOTING RESEARCH THROUGH TECHNOLOGY, INNOVATION AND CREATIVITY”

Tuesday April 17, 2018

Student Services Center

- 8:00 a.m. Registration (SSC Theater Reception Area)
- 8:00 a.m. - 8:30 a.m. Continental Breakfast (SSC Multipurpose Room)
- 8:00 a.m. - 3:00 p.m. Graduate Program Tables (Hallways)
- 8:45 a.m. - 8:50 a.m. Greetings (Multipurpose Room)  
Dr. LaKeisha Harris, Interim Dean, School of Graduate Studies

**CONCURRENT SESSIONS:**

- 9:00 a.m. - 10:30 a.m. Poster Presentations (Student Services Center Ballroom)
- 9:00 a.m. - 10:30 a.m. Technology and Innovation: UMES Remote Sampling Exhibit -  
(Outside: Use the SSC Theater Hallway Exit)  
Dr. Xavier Henry
- 9:15 a.m. to 10:15 a.m. Monetary Presentation: Federal Reserve Challenge  
Business Undergraduates (Multipurpose Room)  
Dr Monisha Das
- 9:30 a.m. - 10:30 a.m. Technology and Innovation: NASA Launch Photo Show  
“Smile! - You are on the Camera. NASA Social Experienced by  
Scientist and Photographer ” (Theater)  
Dr. Victoria Volkis





School of Graduate Studies  
DIVISION of ACADEMIC AFFAIRS

Regional Research Symposium 2018  
Student Services Center

“PROMOTING RESEARCH THROUGH TECHNOLOGY, INNOVATION AND CREATIVITY”

Tuesday, April 17, 2018

Student Services Center

**THREE MINUTE THESIS (3MT®)**

10:45 a.m. - 11:45 a.m.      **Doctoral and Masters Competition** (Multipurpose Room)

**Judges**

Dr. Kingsley Ejiogu, Department of Criminal Justice, UMES

Dr. Willie Brown, Department of Engineering, UMES

Dr. Cynthia Cravens, Department of English, UMES

Ms. Catherine Passeri, Instructional Technology, UMES

**Timekeeper**

Mr. Zoe Johnson, Department of Natural Sciences, UMES

**Undergraduate Presentations (Multipurpose Room)**

Highlights: Department of Engineering Undergraduates

**LUNCHEON**

12:00 noon – 12:05 p.m.      **Greetings** (Student Services Center Ballroom)

**MASTER OF CEREMONIES:**

Dr. LaKeisha Harris, Interim Dean, School of Graduate Studies

12:00 noon - 12:05 p.m.      **Greetings** (Student Services Center Ballroom)

Dr. Kimberly Whitehead, Interim Provost and

Vice President for Academic Affairs, UMES

12:05 p.m. - 12:06 p.m.      **Invocation** (Student Services Center Ballroom)

Dr. Mobolaji Okulate, Department of Natural Sciences, UMES







School of Graduate Studies  
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Regional Research Symposium 2018  
Student Services Center

"PROMOTING RESEARCH THROUGH TECHNOLOGY, INNOVATION AND CREATIVITY"

Tuesday, April 17, 2018

Student Services Center

- 12:06 p.m. - 12:35 p.m.      **Lunch** (Student Services Center Ballroom)
- 12:06 p.m. - 12:35 p.m.      **Musical Interlude** (Student Services Center Ballroom)  
Mr. Preston Gross, School of Graduate Studies
- 12:35 p.m. - 12:45 p.m.      **Introduction of Speaker** (Student Services Center Ballroom)  
Dr. Juliette B. Bell, President, UMES
- 12:45 p.m. - 1:00 p.m.      Dr. Maurice Crawford, Asso Prof. Department of Natural Sciences, UMES  
"Seagrass Habitat in the Maryland Coastal Bays"
- 1:05 p.m. - 1:20 p.m.      Dr. Eric May, Asst. Prof., Department of Natural Sciences, UMES  
"Fisheries in the Maryland Coastal Bays"
- 1:20 p.m. - 1:25 p.m.      **Break**

**CONCURRENT SESSIONS:**

- 1:25 p.m. - 2:40 p.m.      **Oral Presentations Session I** (Student Services Rooms  
Theater, 2144, 2146, 2147, 2149)
- 1:25 p.m. - 2:40 p.m.      **Creative Endeavors:**  
**Bridget Clinton, Human Ecology Fashion (Multipurpose Room)**





School of Graduate Studies  
DIVISION of ACADEMIC AFFAIRS

Regional Research Symposium 2018  
Student Services Center

“PROMOTING RESEARCH THROUGH TECHNOLOGY, INNOVATION AND CREATIVITY”

Tuesday, April 17, 2018

Student Services Center

2:45 p.m. - 3:45 p.m. Graduate Student Government Panel (Multipurpose Room)

3:45 p.m. - 4:45 p.m. Awards Ceremony (Multi-Purpose Room)

Remarks:

Dr. LaKeisha Harris, Interim Dean, School of Graduate Studies

Announcement of Student Awards:

Dr. Paulinus Chigbu, Chair, Faculty Awards Committee

Outstanding Scholar 2010

3MT Competition

Master's Category

Doctoral Category

People's Choice Award

Undergraduate Students (Oral Sessions)

First Place

Second Place

Undergraduate Students (Poster Sessions)

First Place

Second Place

Graduate Students (Oral Sessions)

First Place

Second Place





School of Graduate Studies  
DIVISION of ACADEMIC AFFAIRS

**Regional Research Symposium 2018**  
Student Services Center

“PROMOTING RESEARCH THROUGH TECHNOLOGY, INNOVATION AND CREATIVITY”

**Tuesday, April 17, 2018**

**Student Services Center**

Graduate Students (Poster Sessions)

First Place

Second Place

Faculty (Oral Sessions)

First Place

Faculty (Poster Sessions)

First Place

3:45 p.m.

**Closing Remarks**

Dr. Lakeisha Harris, Interim Dean, School of Graduate Studies



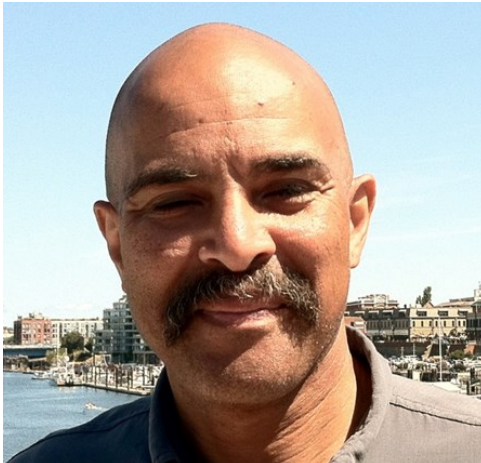
## Concurrent Series SPEAKERS



**Dr. Victoria Volkis, Chemistry**  
**Department of Natural Sciences**  
**University of Maryland Eastern Shore**

Dr. Victoria Volkis, an Associate Professor of Organic Chemistry, joined the faculty at UMES in 2010. In fall 2017, she was selected as a participant for NASA Social event on Wallops Facility during the launch of Antares rocket with cargo load for the international Space Station. She had press credentials to photograph the launch from a very short distance, communicate with astronauts that were serving on the international station, talk to scientists responsible for experiments that were sent to the station, participate in press-conferences and much more. Her relationship with NASA started in 2013 from writing a collaborative proposal. Her illustrated story and experience will be presented over a short talk. She is an avid photographer and science enthusiast in her down time.

**SPEAKER**



**Dr. Maurice Crawford, Fisheries  
Department of Natural Sciences  
University of Maryland Eastern Shore**

Maurice Crawford began his career as a Fish Ecologist studying the age and growth of fishes with the National Oceanic and Atmospheric Administration (NOAA) in Woods Hole, MA. Dr. Crawford holds a B.S. in Biology from the University of Massachusetts at Dartmouth. He received his Master's degree in Ecology from Rutgers University where he studied the population genetics of weakfish. He also worked at the University of Georgia investigating factors regulating the organization of stream fish assemblages.

Dr. Crawford received his Ph.D. from North Carolina State University where he examined the effects of seagrass spatial heterogeneity on fishes. He was awarded a post-doctoral fellowship with the American Association for the Advancement of Science (AAAS). As an AAAS Science and Diplomacy Fellow, he worked with the US Agency for International Development (USAID) providing technical assistance on USAID's Climate Change Initiative. He currently is an Associate Professor at the University of Maryland Eastern Shore. His research interests include estuarine habitat conservation/restoration; the dispersal and movement of organisms; and the role of science in policy.

Luncheon Speaker

**SPEAKER**



**Dr. Eric B. May, Fisheries**

**Department of Natural Sciences**

**University of Maryland Eastern Shore**

Dr. May received his B.S. in 1971 in Zoology with a Fisheries minor; his M.S. in Biology in 1972 with concentrations in Aquatic Ecology, Parasitology and Cell Biology; and his Ph.D. in 1983 with concentrations in Biochemistry, Pathology and Microbiology.

Since beginning his independent professional career in 1982 Dr. May has served as an assistant professor in the Department of Pathology, University of Maryland School of Medicine during which time he formed and served as coordinator for the Aquatic Toxicology and Pathobiology Laboratory and the first senior pathologist for the National Aquarium in Baltimore. He was Coordinator and then Chief of the Aquatic Animal Health Program for the Maryland Department of Natural Resources for 14 years and State Assistant Unit Leader for the Maryland Cooperative Fish and Wildlife Research for Unit at the University of Maryland Eastern Shore 3 years. Dr. May served as the first director of the NOAA Living Marine Resources Cooperative Science Center (LMRCSC) and the first Distinguished Research Scientist for the LMRCSC. He is currently a professor of fisheries science for the Department of Natural Sciences.

He brings to the University extensive experience and training in fisheries, fish pathology, fish physiology and toxicology having conducted studies on the wastewater discharge impacts on resident fish, contaminant effects on fin-fish health in the Kanawa River, liver tumor distribution in white perch, striped bass larval survival, environmental factors influencing immune response in brown bullheads, distribution and intensity of infection of fish pathogens in the Chesapeake Bay, US Army Aberdeen superfund site investigations on fish health effects, effects of de-icing and anti-icing compounds on fish survival, toxicity of tire leachates to fish, health status of fish resident to tributaries of the Chesapeake Bay and most recently, the impact of agricultural practices on watersheds of the Manokin River as well as contaminants in dogfish resident to the Delaware Bay.



## NONCOMPETITIVE PRESENTATION SCHEDULE

### Innovation and Technology

#### REMOTE SAMPLING

Tuesday April 17, 2018 9:00 AM – 10:30 AM SSC Theater Pond and/or Hallway

#### NASA LAUNCH PHOTO PRESENTATION

Tuesday April 17, 2018 9:15 AM – 10:15 AM SSC Theater

### Monetary Presentation

#### FEDERAL RESERVE CHALLENGE (Abstracts CE 1–CE 5)

Tuesday April 17, 2018 9:15 AM – 10:45 AM SSC Multipurpose Room

### 3MT Undergraduate

#### ENGINEERING

Tuesday April 17, 2018 10:45 AM – 11:45 AM SSC Multipurpose Room

### Creative Endeavors

#### FASHION (Abstracts CE 1–CE 5)

Tuesday April 17, 2018 1:25 PM – 2:40 PM SSC Multipurpose Room

## COMPETITION PRESENTATION SCHEDULE

### Poster Session:

All Disciplines (Abstracts P1-P35)

Tuesday April 17, 2018 9:00 AM - 10:30 AM, SSC Ballroom

### 3MT Competition:

All Disciplines

Tuesday April 17, 2018 10:45–11:45 am SSC Multipurpose Room

### Oral Sessions:

#### SESSION I

Session I Group A: All Disciplines (Abstracts O1-O5)

Tuesday April 17, 2018 1:25 PM – 2:40 PM , SSC Theater

Session I Group B: All Disciplines (Abstracts O6-O10)

Tuesday April 17, 2018 1:25 PM – 2:40 PM , SSC Room 2149

Session I Group C: All Disciplines (Abstracts O11-O15)

Tuesday April 17, 2018 1:25 PM – 2:40 PM , SSC Room 2147

Session I Group D: All Disciplines (Abstracts O16-O20)

Tuesday April 17, 2018 1:25 PM – 2:40 PM , SSC Room 2146

Session I Group E: All Disciplines (Abstracts O21-O24)

Tuesday April 17, 2018 1:25 PM – 2:40 PM , SSC Room 2144

## PARTICIPANT AND AFFILIATE INSTITUTIONS

Auburn University (Auburn Alabama )

Department of Entomology and Plant Pathology

The George Washington University Medical Center (Washington, DC)

1. Department of Pharmacology and Physiology

University of Maryland, Baltimore County (Baltimore, MD)

1. Departments of Chemical, Biochemical & Environmental Engineering
2. Department of Physics

University of Maryland, College Park (College Park, MD)

1. Department of Aerospace Engineering
2. Department of Biology
3. Department of Cell Biology and Molecular Genetics
4. Department of Chemical & Biomolecular Engineering
5. Fischell Department of Bioengineering
6. Institute for Systems Research
7. Institute for Physical Science and Technology, Maryland Pathogen Research Institute
8. School of Public Health

University of Maryland Eastern Shore (Princess Anne, MD)

1. Department of Agriculture, Food and Resource Sciences
2. Department of Business Management and Accounting
3. Department of Education
4. Department of Engineering and Aviation Sciences
5. Department of Human Ecology
6. Department of Natural Sciences
7. Department of Pharmaceutical Sciences
8. Department of Pharmacy Practice
9. Department of Physical Therapy
10. Department of Social Sciences
11. Food Science and Technology
12. Office of Student Engagement and Lifelong Learning
13. Organizational Leadership Program

University of Maryland Extension, Wye Research & Education Center (Queenstown, MD)

## PARTICIPANTS

### **Creative Presentations: Fashion** **Multipurpose Room 1:25 PM to 2:40 PM**

- CE1: **Product Customization Design Presentations.** Bridgett Clinton-Scott., Ph.D.
- CE2: **The Influence of Mobile Retail Application Functions on Consumer Online Interactions.** Shakinah Braxton and Bridget Clinton-Scott, Ph.D.
- CE3: **Retailers' Social Media Usage and Consumer Interaction.** Shavonne Hair and Bridgett Clinton-Scott, Ph.D.
- CE4: **Retail Mobile Apps: An Emerging Retail Trend.** Alexia Moye and Bridgett Clinton-Scott., Ph.D.
- CE5: **Impact of Social Media on Fashion Retailers: Online and Department Stores.** Brenda Oppong-Boateng and Bridgett Clinton-Scott, Ph.D.
- CE6: **The Influence of Social Media on Consumer Decision Making.** Daysia Taylor and Bridgett Clinton-Scott, Ph.D.

### **Monetary Presentations**

**Multipurpose Room 9:15 AM to 10:15 AM**

- CE7: **Streaming Music: Is YouTube Still Valuable Enough For Musicians to Increase Viewership.** Marcus Baldwin and Monisha Das.
- CE8: **UMES Federal Reserve Challenge Team Presentation on Federal Open Market Committee Deliberations.** Monisha Das.
- CE9: **The First Amendment and Social Media Companies. Should social media companies be regulated.** Monisha Das.
- CE10: **YouTube Feminine Space: The Influence of African-American Makeup YouTubers.** Ashanti Price and Monisha Das.

## PARTICIPANTS

### 3MT® COMPETITION PARTICIPANTS

#### Doctoral Category

- 3MT1.** Isis Amaye, Pharmaceutical Science: The Journey to Cure Drug Resistant Epilepsy  
**3MT2.** Melody Colebrook-Jones, Organizational Leadership: Transform, Integrate, Educate: The Synergy of Dual-Language and STEM  
**3MT3.** Celeste Luning, Organizational Leadership: Identifying a Culture of Grit

#### Master's Category

- 3MT4.** Jocelyn Simmons, Food and Agricultural Science: The Efficacy of a Field Collected Fungal Pathogen Against Green Stinkbug in Maryland.  
**3MT5.** Patricia King, Food and Agricultural Sciences: Evaluation of hybrid biomass forage sorghum as an alternative bedding material in broiler houses  
**3MT6.** Adaobi Egwuagu, Pharmaceutical Sciences: Prostate Cancer: The fight to improve patient survival

#### Undergraduate Trials

- Trial 1.** Kenneth Austin, Engineering and Aviation Sciences: The Outlook of Air Traffic Controllers and the Proposed Transformation to Create an Unionized Workforce  
**Trial 2.** Kobina Amonyi Manley Nyarku, Engineering and Aviation Sciences: Examining Aviation Safety Practices through Statistical Performance and Data Analysis  
**Trial 3.** Scott Hogan, Engineering and Aviation Sciences: What are the Future Implications of Privatized Industry in Commercial Space Exploration from an Aviation Science Perspective

## ABSTRACTS

### Poster Presentation Abstract Titles and Presenters

#### Faculty Poster Session

- P01. Assessment of a Student Pharmacist's Validated Tool for Planning Public Health Projects in a Required Course.** Hoai-An Truong, PharmD, MPH, FAPhA, FNAP<sup>1\*</sup>, James Onayiga, PharmD<sup>1</sup>

#### Graduate Poster Session

- P02. Early Drug Discovery and Preclinical Evaluation of Fluorinated Enaminone Benzamides as Potential Antiseizure Agents for Drug Resistant Epilepsy.** Amaye, Isis J<sup>1</sup>, Patrice Jackson-Ayotunde, PhD<sup>1\*</sup>.
- P03. Effects of Heat Stress on Growth Performance of Broilers and Postmortem Metabolism and Quality Characteristics in Chicken Breast Meat.** Wendy Attuquayefio<sup>1</sup>, Anuradha PUNCHIHEWAGE Don<sup>1</sup>, Byungrok Min, Ph.D.<sup>1\*</sup>

Poster Presentation Abstract Titles and Presenters

- P04. The Necessity of Electrooculographic Accuracy as a Precursor to Virtual Reality Visual Testing.** Nicole Austin<sup>1</sup>, Ben Taylor<sup>1</sup>, Dieudonne Ndifor<sup>1</sup>, Les Keniston, Ph.D.<sup>1\*</sup>
- P05. The Probability of Disease Progression and Assistive Device Use in Amyotrophic Lateral Sclerosis.** Michelle Gorman<sup>1</sup>, Nicole Baker<sup>1</sup>, Hilary Davis<sup>1</sup>, Nahomy Rojas<sup>1</sup>, Les Keniston, Ph.D.<sup>1\*</sup>
- P06. Shortcuts to Adiabaticity for Single Qubit Control in Quantum Annealers.** Mujibur Bhuniyan<sup>1</sup>, Sebastian Deffner, Ph.D.<sup>1\*</sup>
- P07. Real-time Ultrasound Assessment of Articular Cartilage Thickness of the Trochlear Surface.** N Brumfield, J Carson, K Levi-Goerlich, R Whiteley, C Gill, DPT.
- P08. Molecular Modeling Revealed the Drug Resistance of Alternatively Spliced Isoforms of PI3K $\delta$  and FGFR3 in Prostate Cancer.** Yu-Chih Chen<sup>1\*</sup>, Bi-Dar Wang, Ph.D.<sup>1,2</sup>
- P09. Development of an Assessment of Empathy Tool toward the Patient with Breathlessness: a Preliminary Case Report.** George Steer, Ph.D.<sup>1</sup>, Chelsea Chmel<sup>1\*</sup>, Leigh Hobson<sup>1\*</sup>, Leland Thomas<sup>1\*</sup>
- P10. Neuroendocrine Differentiation Induces T-Type Ca<sup>2+</sup> Channel Expression that alter Response to Chemotoxic Agents in Prostate Cancer Cells *In Vitro*.** Adaobi Egwuagu<sup>\*</sup>, Miguel Martin-Caraballo, Ph.D.
- P11. Non-steroidal Anti-inflammatory Drugs (NSAIDs) Usage in the United States: What Do Consumers Need to Worry About?** Devanshi Gandhi<sup>\*</sup>, Relindis Ngwa, Elvis Chi, Nancy Wambi, Adit Shah, Madan Kharel, Ph.D.
- P12. Understanding the Population Dynamics of Arthropod Pollinators and their Host Preferences to Mitigate Food Insecurities at the UMES Campus.** Ebony Jenkins<sup>1\*</sup>, Jocelyn Simmons<sup>1</sup>, and Simon Zebelo, Ph.D.<sup>1</sup>
- P13. The Efficacy of a Field Collected Fungal Pathogen Against Green Stinkbug in Maryland.** \*Jocelyn Simmons<sup>1</sup>, Ebony Jenkins<sup>1</sup>, Rammohan Balusu<sup>2</sup>, Simon Zebelo, Ph.D.<sup>1</sup>
- P14. Strongman and Strongwoman Athletes: Athletic Background, Training Styles, and Injury History.** Andy Deck<sup>\*</sup>, Laura Kaufman, Cristina Prince, Les Keniston, Ph.D.
- P15. An Assessment of Cybersecurity Practices in the US Farm and Food Systems.** Muhammad H. Khan<sup>\*</sup>, Caleb Nindo, Ph.D.
- P16. Functional Mobility Loss and Assistive Device Use in Amyotrophic Lateral Sclerosis.** Marc McDonald, Gabriella Dejuliis, Michelle Gorman, Les Keniston Ph.D.
- P17. Peak Expiratory Flow Rates in Patients with Amyotrophic Lateral Sclerosis Compared to Forced Vital Capacity as Predictors of Disease Progression.** George Steer, Ph.D.<sup>1\*</sup>, Corey Nininger<sup>1</sup>, Thomas Yoder, Ph.D.<sup>1</sup>
- P18. Evaluation of Metabolic Responses during Lipid Starvation of an oyster parasite *Perkinsus marinus*: A Potential Alternative Model for Lipid Metabolism.** Kristin Noell<sup>1</sup>, Joseph Pitula, Ph.D.<sup>2</sup>
- P19. Floor Rise and Locomotion Among Persons with Parkinson's Disease.** Dennis Klima, PT, PhD, DPT<sup>1</sup>, Frank Freijomil<sup>\*</sup>, SPT<sup>1</sup>, Maurice Oliver<sup>\*</sup>, SPT<sup>1</sup>, Jeremy Stewart<sup>\*</sup>, SPT<sup>1</sup>
- P20. Inhibition of Herpes Simplex Virus Replication in Differentiated Neuronal Cells.** Faith Osinaga<sup>1</sup>, Victor Hsia,



## Poster Presentation Abstract Titles and Presenters

Ph.D.

- P21. Effects of Early Heat Conditioning at Different Ages on Heat Stress Indicators and Metabolic and Quality Parameters in Broiler Breast Meat.** Anuradha Punchihewage Don\*, Wendy Attuquayefio, Byungrok Min, Ph.D.
- P22. The Influence of the X-Factor on Golf Performance: A Systematic Review.** Taylor Wiedel<sup>1\*</sup>, Diana Diep<sup>1</sup>, Erica Potts<sup>1</sup>, Paige Thomas<sup>1</sup>, Michael Rabe, DPT<sup>1</sup>
- P23. Student Coaching in a Community-Based Fall Prevention Program on Maryland's Eastern Shore .** Dennis Klima, PT, PhD, DPT<sup>1</sup>, **Jesstine Wolfe<sup>1</sup>, SPT\*, **Nathan Austin<sup>1</sup>, SPT\*, **Katherine Avila<sup>1</sup>, SPT\*, Emily Wehland, SPT<sup>1</sup>, Aspen Holmes, SPT<sup>1</sup>, Jessica Weimert, SPT<sup>1</sup>, Nicholas Rhoten, SPT<sup>1</sup>******
- P24. MicroRNA as Contributors to Prostate Cancer Disparities.** Azah Mohamed<sup>1\*</sup>, Yu Chih Chen, Ph.D.<sup>2</sup>, Bi-Dar Wang, Ph.D.<sup>2,3</sup>

### Undergraduate Poster Session

- P25. The Effect of Inorganic Nitrogen Enrichment on Urease Activity within Agricultural Drainage Ditch Sediments.** Skye Blake, Sabrina Klick, Eric May, Ph.D.
- P26. Use of Shellfish Waste to Obtain Chitin for Reversible Carbon Dioxide Uptake..** Alexa Brady<sup>1\*</sup>, Katherine Lipsius<sup>1</sup>, Benjamin Barnes<sup>1</sup>, Preeti Sharma<sup>1</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>
- P27. The Influence of Temperature on the Antioxidants Capacity of Juiced *Aronia Mitschurinii*.** Taryn Jones, Kierra Smith<sup>1</sup>, Andrew Ristvey, Ph.D.<sup>2\*</sup>, Victoria Volkis, Ph.D.<sup>1†</sup>
- P28. Isolation and Characterization of Essential Oils in Medicinal Herbs, Plants, And Algae; and Their Applications in Pest Control.** Mark Joseph<sup>1\*</sup>, Carson Cohen<sup>1\*</sup>, Simon Zebelo, Ph.D.<sup>1†</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>
- P29. Using Hydrolysis to Increase Effectiveness of Chitin for Reversible Carbon Dioxide Capture.** Katherine Lipsius<sup>1\*</sup>, Preeti Sharma<sup>1</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>
- P30. Probing Polymeric Blends With Natural Extracts From *Aronia Mitschurinii* As An Effective And Natural Substitute Of Tributyl Tin (TBT) For Antifouling Protection.** Darrick Moore, Hernan Osorio, Haileab Ghebrekiden, Baruch Volkis, Paulinus Chigbu, Ph.D.<sup>†</sup>, Victoria V. Volkis, Ph.D.<sup>†\*</sup>
- P31. Dye-Sensitized and Innovative Perovskite Solar Cell.** Kanieka Neal<sup>1\*</sup>, Kausik S. Das, Ph.D.<sup>1</sup>, Yan Waguespack, Ph.D.<sup>1</sup>
- P32. Dye Sensitized Solar Cells (DSSC).** Joshua Orebiyi, Kausiksankar S. Das, Ph.D.
- P33. Benchtop Photolithography and High Resolution Photomask Design.** Habilou Ouro-Koura\*, Kausiksankar S. Das, Ph.D.
- P34. Urease Containing Bacteria in Agricultural Drainage Ditch Sediment Bordering a Fertilized and Non-Fertilized Crop Field.** Datonya Price, Sabrina Klick, Joe S. Pitula, Ph.D., Eric B. May, Ph.D.
- P35. Extraction of Antioxidants from *Aronia mitschurinii* Juice Using Macroporous Resins.** Jasmine Turner<sup>1</sup>, Gabrielle Mister<sup>1</sup>, Breann Hrechka<sup>1</sup>, Andrew G. Ristvey, Ph.D.<sup>2</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>

## Oral Presentation Abstract Titles and Presenters

### Faculty Oral Session

- O01. Assessing Pharmacy and Physical Therapy Students' International Intercultural Competency Skills.** Yen H. Dang, Ph.D.<sup>1\*</sup>, Latasha Wade, Ph.D.<sup>1</sup>, Michelle Gorman, Ph.D.<sup>2</sup>, Hoai-An Truong, Ph.D.<sup>1</sup> . . .Concurrent Session IA – 1.
- O02. Measurement of Students' Progression in the Classroom.** Khaled Muhsen Hasan, Ph.D.<sup>1\*</sup> . . . . . Concurrent Session IA – 2.
- O03. Birnessite-Type Manganese Dioxide Nanoparticles: Eco-friendly Catalysts for Timely Remediation of Hard-to-Degrade Organic Pollutants.** Cui Fang, Ph.D., Marcos A. Cheney, Ph.D.<sup>1</sup>, Madan Kharel, Ph.D.<sup>2\*</sup>. . . . . Concurrent Session IA – 3.
- O04 Development, Implementation and Impact of a Global Health Service Mission in a Rural Community in Vietnam.** Hoai-An Truong, PharmD, MPH, FAPhA, FNAP<sup>1\*</sup>, Jessica Wearden, PharmD candidate<sup>1</sup>, Vu Nguyen, PharmD candidate<sup>1</sup>, Alexis Smith, PharmD candidate<sup>1</sup>, Yen H. Dang, PharmD, CTTS-M<sup>1</sup>. . .Concurrent Session IA – 4.
- O05 Withdrawn**

### Graduate Oral Session

- O06. Utilizing Authentic Leadership as a Conceptual Lens to Revisit the Hawthorne Studies.** Linda Cureton and Tyrone Chase, Ph.D. . . . . Concurrent Session IB – 1.
- O07. Innovating in Complex Environments - The Fuzzy Box.** Linda Cureton, Davitta Ealy, Tyrone Chase, Ph.D. . . . . Concurrent Session IB – 2.
- O08. An Exploration of Leadership Perceptions of a Culture of Grit and the Associated Leadership Behaviors within that Environment.** Celeste Raver-Luning\*, Prince Attoh, Ph.D., Tao Gong, Ph.D. . . . . Concurrent Session IB – 3.
- O09. Global Tide-Circulation-Storm Surge Simulations by ADCIRC: A Case Study for Hurricane Harvey in the Gulf of Mexico.** Miaohua Mao<sup>1</sup>, Meng Xia, Ph.D.<sup>1\*</sup> . . . . . Concurrent Session IB – 4.
- O10. Extraction and Use of Chitin and its Derivatives for Effective Carbon Sequestration.** Preeti Sharma<sup>1\*</sup>, Benjamin Barnes<sup>1</sup>, Victoria Volkis, Ph.D.<sup>1†</sup>. . . . . Concurrent Session IB – 5.
- O11. Identifying Students Education Problems.** Samit Shivadekar, Yelena Yesha, Ph.D. . . . Concurrent Session IC – 1.
- O12. The Impact of Marijuana on University Students.** Khaled Hasan, Ph.D.<sup>1</sup>, Olufisayo Oluwafemi<sup>1\*</sup>, Wilde Ketchantang<sup>1</sup>. . . . . Concurrent Session IC – 2.

### Undergraduate Oral Session

- O13. Designing Fractal Supercapacitors.** Christopher Blanks<sup>1\*</sup>, Ben Barnes<sup>2</sup>, Kausik Das, Ph.D.<sup>1</sup>, Mark DeMorra<sup>2</sup> . . . . . Concurrent Session IC – 3.



## Oral Abstracts: Titles and Presentation Data

- O14. The Correlations Between Cultural Management and the Antioxidant Content in *Aronia mitschurinii* – Ten Years of Monitoring.** Breann Hrechka<sup>1</sup>, Andrew G. Ristvey, Ph.D.<sup>2</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>. . . *Concurrent Session IC – 4.*
- O15. Identification of Phosphatidylserine Translocation Mechanisms as a Marker of Cell Death in Bacteria.** Tobenna Mbonu<sup>1\*</sup>, Daniel Dwyer, Ph.D.<sup>1,2</sup> . . . . . *Concurrent Session IC – 5.*
- O16. Real-Time Aerosol Particle Measurement Methods: Air Quality Analysis.** Francis Oyebanjo<sup>1\*</sup>, Akua Asa-Awuku, Ph.D.<sup>1</sup>. . . . . *Concurrent Session ID – 1.*
- O17. Olfactory Decline in Mouse Models of Alzheimer’s Disease.** Michael Ray<sup>1\*</sup>, Ricardo Araneda, Ph.D.<sup>1</sup>. . . . . *Concurrent Session ID– 2.*
- O18. UV-Vis Analysis of Interaction of Adenine and Vitamin B6.** Yasmin Roye\*, Uche Udeochu, Ph.D. . . . . *Concurrent Session ID – 3.*
- O19. Contribution of the PTS Beta-Glucoside EII Transporter to the Pathophysiology of the Group A Streptococcus.** Aliyah B. Silver\* and Kevin S. McIver, Ph.D. . . . . *Concurrent Session ID – 4.*
- O20. Analysis of the *Leishmania*-Human Macrophage Dual Transcriptome Investigation of Host-Pathogen Interactions.** Sarah Sudlow\*, Ashton Trey Belew, Ph.D., Najib El-Sayed, Ph.D. . . . . *Concurrent Session ID– 5.*
- O21. Effect of Direct Drive Flapping Mechanism on MAVs Flapping Frequency.** Yoseph Tewodros\*, James Lankford, Ph.D.\*. . . . . *Concurrent Session IE – 1.*
- O22. “Kidney-on-a-Chip”: Modeling In Vivo Tubular Networks.** Amarachi Ude\*, Ryan Sochol, Ph.D. . . . . *Concurrent Session IE – 2.*
- O23. The Effect of Vagal Nerve Stimulation on Auditory Task Learning.** Lydia Mazze\*, Jonathan Fritz, Ph.D. . . . . *Concurrent Session IE – 3.*
- O24. Relation of Trauma and Mood to Cognitive Functioning in African American College Students.** Glory-Ruth Kang\*, Princess Bolton, Michael K. Reed, Ph.D. . . . . *Concurrent Session IE – 4.*
- O25. Relation of Trauma and Mood to Coping Skills in the Functioning in African American College Students.** Damaris E. Ramirez Tolentino\*, Isaiah E. Lesesne, Michael K. Reed, Ph.D. . . . . *Concurrent Session IE– 5.*
- O26. The Influence of Temperature on the Antioxidants Capacity of Juiced *Aronia Mitschurinii*.** Amit Sharma, Courtney Rhoades<sup>1</sup>, Nia Alleyne<sup>1</sup>, Blessing Aroh<sup>1</sup>, Kelsey Chandler<sup>2</sup>, Andrew Ristvey, Ph.D. <sup>2\*</sup>, Victoria Volkis, Ph.D.<sup>1†</sup>. . . . . *Concurrent Session IA– 5.*
- O27. Wendy Edmonds.** . . . . . *Concurrent Session IA– 5.*



## University of Maryland Eastern Shore 2018 Graduate Education Week

### Oral Presentations Session I: Faculty All Disciplines (Abstracts O01 to O05)

Tuesday April 17, 2018 1:25 PM - 2:40 PM, SSC Theater

#### Faculty Oral Presentations

O01

##### **Assessing Pharmacy and Physical Therapy Students' International Intercultural Competency Skills**

**Yen H. Dang, Ph.D.<sup>1\*</sup>**, Latasha Wade, Ph.D.<sup>1</sup>, Michelle Gorman, Ph.D.<sup>2</sup>, Hoai-An Truong, Ph.D.<sup>1</sup>

<sup>1\*</sup> Department of Pharmacy Practice, University of Maryland Eastern Shore, Princess Anne, MD 21853

<sup>2</sup>Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Intercultural competency training in healthcare curriculum allows students to develop knowledge, skills and attitudes, in working with diverse populations. The objective of the study is to determine the level of intercultural competency among pharmacy and physical therapy (PT) students using the Wesleyan Intercultural Competence Scale (WICS). First-year pharmacy and PT students completed the WICS survey to self-assess their intercultural skills using a situational judgement testing approach. The 16-item Likert scale survey was utilized to assess past cultural experiences in different international scenarios. Final computed score ranked students in 6 developmental stages, including the lower three stages of denial, defense, minimization and the higher three stages of acceptance, adaptation, integration. Fifty-four pharmacy and 29 PT students completed the survey. For pharmacy, 27 (50%) students scored in the acceptance, 18 (33.3%) in the adaptation, 6 (11.1%) in the minimization, and 3 (5.5%) in the defense stage. For PT, 24 (82.8%) students scored in the acceptance, 2 (6.89%) scored in the adaptation, and 3 (10.3%) scored in the minimization stage. Situations in which students performed with the highest intercultural competence skills included responses to scenarios involving grocery shopping. Students scored lowest in interacting with local peers scenarios. While most students scored in the acceptance phase of the WICS, many have not achieved higher stages of intercultural competence. Pharmacy schools should integrate global health topics into the curriculum, host international students, and facilitate experiences abroad for students to develop intercultural competency.

O02

##### **Measurement of Students' Progression in the Classroom** **Khaled Muhsen Hasan, Ph.D.<sup>1\*</sup>**

<sup>1</sup> Department of Pharmacy Practice, University of Maryland Eastern Shore, Princess Anne, MD 21853

Classroom assessments are best utilized to guide improvements in student learning. Quizzes, tests, writing assignments, and other assessments are administered on a regular basis in classrooms. Classroom assessments are used to evaluate students' progression. The aim of this study was to measure students' improvement, which reflects understanding, application, and evaluation of topics covered in the classroom. This prospective study involves first year post graduate pharmacy students. Fifty-eight first year pharmacy students participated in this study. Pre- and post-lecture quizzes were available online on ExamSoft. These quizzes have been used to evaluate students in gastrointestinal (GIT) pharmacology course. Time has been allotted to 10 minutes to answer each quiz. The topic was covered using turning point presentation and displayed by an overhead projector. The lecture lasted three hours and a break was given the students every fifty minutes, and then the post-lecture quiz was delivered. Twenty-three students have passed the pre-lecture quiz and 35 students were unable to pass the quiz. Students' grades have improved significantly ( $P < 0.0001$ ) after the lecture as 45 students passed the post-lecture quiz, and only 13 students were unable to pass both pre- and post-lecture quizzes. Student progression was measured by the grades gained after the lecture. Most students (41) progressed significantly while some students (15) did not change their grades and only two students demonstrated grade regression,  $p$  value  $< 0.0009$ . Quizzes incorporated into traditional didactic lectures could be a useful method to improve student benefit from lectures and also to predict the performance in the assessments. The performance of students in classroom indicated significant improvement in understanding and comprehension of the academic materials. Using both pre- and post-lecture quizzes can lead to improved student preparation and increase student participation in classroom. Pre- and post-lecture quizzes can be used as a method to promote student preparation, retention of information, and performance on assessments.

O03

##### **Birnessite-Type Manganese Dioxide Nanoparticles: Eco-friendly Catalysts for Timely Remediation of Hard-to-Degrade Organic Pollutants**

Cui Fang, Ph.D., Marcos A. Cheney, Ph.D.<sup>1</sup>, Madan



## University of Maryland Eastern Shore 2018 Graduate Education Week

### Oral Presentations Session I: Faculty All Disciplines (Abstracts O01 to O05)

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#### Kharel, Ph.D.<sup>2\*</sup>

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<sup>2</sup>Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Synthetic organic pollutants are responsible for the majority of aquatic and terrestrial environmental pollution. Continuous release of these pollutants (in various forms such as dyes, agrochemicals and personal care products) in conjunction with their poor environmental degradation has resulted in their environmental accumulation. To address this issue, birnessite-type manganese dioxide nanoparticles have been widely studied for their application in rapid degradation of structurally diverse organic compounds. Most of the degradation methods developed thus far utilize a variety of conditions such as UV radiation, harsh acids, high temperature, organic solvents or other sophisticated catalysts that are challenging to employ in large scale environmental remediation settings. We herein report an optimal catalytic condition for the degradation of varieties of organic pollutants using birnessite-type manganese dioxide nanoparticles. The catalysis occurs in a simple and organic solvent-free condition, and does not produce any secondary waste. In addition, the catalyst can be recycled for multiple times without a major loss of catalytic activity.

O04

#### Development, Implementation and Impact of a Global Health Service Mission in a Rural Community in Vietnam

Hoai-An Truong, PharmD, MPH, FAPhA, FNAP<sup>1\*</sup>, Jessica Wearden, Vu Nguyen<sup>1</sup>,

Alexis Smith<sup>1</sup>, Yen H. Dang, PharmD, CTTS-M<sup>1</sup>

<sup>1</sup>Department of Pharmacy Practice and Administration, University of Maryland Eastern Shore, Princess Anne, MD

Global health service includes provision of health education and medical mission to improve health equity for people worldwide. This study describes the development, implementation and impact of a health education and medical mission in a rural community in Vietnam. An academic-community partnership for global health service had the goal to raise awareness and provide health education through an inter-professional collaboration to enhance healthcare access and reduce cardiopulmonary diseases and morbidity/mortality for a rural community in Vietnam. The approach was to develop and implement a 3-pronged program, including (1) training

clinic staff for sustainability, (2) educating the community for disease prevention, and (3) providing primary care for patients. The focus was on stroke, chronic obstructive pulmonary disease, and smoking cessation, as these are leading causes of death in Vietnam. The team included healthcare professionals and students in medicine, nursing, pharmacy, and public health in both the United States and Vietnam. Volunteers collaborated to provide health education, primary care, and medications to individuals living within a rural district. The team was able to: (1) train 44 clinic staff, including physicians, nurses, pharmacists, nutritionists, herbalist/traditional medicine technicians, physical therapists, healthcare students, and others, (2) educate 561 community members through lectures and hands-on activities to increase awareness and ability to recognize risks, signs and symptoms, treatment and prevention strategies, and (3) provide primary care and medications for 1320 patients, averaging 50 years of age and 3 medical conditions diagnosed per patient. Providing global health service in an inter-professional international rural community clinic enabled volunteers to educate and care for diverse populations, gain real-world experiences, and learn valuable lessons for future missions.

O05

#### Graduate Oral Presentations

O06

#### Utilizing Authentic Leadership as a Conceptual Lens to Revisit the Hawthorne Studies

Linda Cureton and Tyrone Chase, Ph.D.

Organizational Leadership, University of Maryland Eastern Shore, Princess Anne, MD 21853

Corporate and societal adversities have motivated significant discussion on Authentic Leadership. In recent times, "fake news" has caused tremendous moral conflict and a dysfunctional political system. Similarly, "fake leadership" can be found in the causes of ethical decay and organizational demise. The "fake news" of the Hawthorne Studies have been offered as a bellwether of the Human Relations Movement. This presentation will revisit the Hawthorne Studies through the conceptual framework of authentic leadership theories. Through this meta-analysis, attendees will receive insight into how these early 19<sup>th</sup> century toxic leadership behaviors were





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inconsistent with authentic leadership. The Hawthorne studies were part of a research program carried out at the Hawthorne Works of the Western Electric Company by F. J. Roethlisberger, H. A. Wright, Elton Mayo, and G. A. Pen-nock. The Western Electric Company manufactured equipment for the telephone industry. The studies consisted of a series of investigations conducted between 1924 and 1932. The goal of the studies was to determine what physical and social factors provided increased worker output.

The Hawthorne Effect refers to the observation that "... the output of the workers seemed to be responding to the transformed interpersonal relationship to the 'boss' ... rather than the explicitly introduced variations in physical conditions of work." We see this phenomenon in other sciences. For example, electrons are effected by the act of being observed and patient improvement due to increased medical attention. Thus, it is reasonable that scientific approaches to human studies consider behavior changes that arise from being observed.

This presentation will present a meta-analysis of the problems with the Hawthorne studies including: (1) they did not demonstrate a Hawthorne effect, (2) the studies were fundamentally flawed and thus the conclusions are inaccurate and (3) the results were manipulated and offer very little scholarly merit to the foundation of the Human Relations Movement. Additionally, we will review the tenets of the Human Resources Movement which include: The tenets of this movement include: (1) humans as valuable resources for the company, (2) organizational influence on human behavior, (3) participative management, (4) increased organizational communication, and (5) shared individual and organizational goals. The study will examine Hawthorne through the lens of what Bill George (2003) calls an Authentic Company. The characteristics of an Authentic Company are closely related to his five dimensions of Authentic Leadership. Our analysis will explore the incongruence between the findings of the study and the principles of authentic leadership. This presentation will provide scholarly and practical insight for attendees who wish to create leadership and organizational strategies which are grounded in research and proven in the business environment.

O07

**Innovating in Complex Environments - The Fuzzy Box.**  
**Linda Cureton, Davitta Ealy and Tyrone Chase, Ph.D.**  
Organization Leadership, University of Maryland Eastern Shore, Princess Anne, MD 21853

Leaders are coached to be innovative by thinking outside of the box. But, what if there is no box? Complex environments require innovative leadership and management to ground-breaking outcomes. This session will discuss the characteristics of these chaotic environments in order to help attendees understand how to orchestrate creativity and value. This session provides practical tools which are motivated by organizational theory and helps managers and leaders drive change in environments that are not within their direct control. Attendees will be better prepared to face this challenging phase and become more successful. If time permits, the session will offer experiential exercises helping to demonstrate leadership techniques.

This session will answer the following questions:

- What is complex adaptive systems?
- How does the theory of chaos and complexity play a role in complex adaptive systems?
- What value does chaos have in organizations?
- What are the leadership strategies for driving change in chaotic environments?
- What are the characteristics of successful leaders of change and innovation?

O08

#### **An Exploration of Leadership Perceptions of a Culture of Grit and the Associated Leadership Behaviors within that Environment**

**Celeste Raver-Luning\***, Prince Attah, Ph.D., Tao Gong, Ph.D.

Department of Social Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

In the past decade, the concept of individual grit has captured the attention of social scientists, school systems, the military, as well as the population as a whole. Individual grit is defined as passion and perseverance for long-term goals. Having higher levels of grit has been linked to individual success in academic settings, the military, teaching effectiveness, and entrepreneurial ventures. Despite the numerous studies on the connection of grit to individual success, there has been little empirical research exploring how grit emerges at the team or organizational level. Angela Duckworth, the leading researcher on individual grit, discussed the concept of grit as a cultural element within organizations and performed interviews of leaders within organizations with cultures of grit. A historical case study



revealed how grit emerged as a cultural element within a military unit during World War II. Despite these peripheral discussions and examinations of how grit may emerge within an organization or team, there has been minimal empirical research into the concept. As such, the purpose of this qualitative study is to explore leadership perceptions of a culture of grit and the associated leadership behaviors within that environment. If organizations or teams can establish cultures in which passion and perseverance are ubiquitous, then they may become more resilient and able to withstand obstacles over time. A gritty culture could provide teams and organizations with a unique competitive advantage over their competitors. This study takes one small step in beginning to develop an understanding of a culture of grit.

O09

**Global Tide-Circulation-Storm Surge Simulations by ADCIRC: A Case Study for Hurricane Harvey in the Gulf of Mexico**

Miaohua Mao<sup>1</sup> and Meng Xia, Ph.D.<sup>1\*</sup>

<sup>1</sup>Department of Natural Sciences, University of Maryland Eastern Shore, MD 21853

Predictions of global tide, circulation, and storm surges are significant to coastal communities. In order to accurately simulate storm surge under extreme weather conditions, a global barotropic, depth-averaged, high-resolution (~ 4 km near the coast and 80 km in the open ocean), unstructured-grid (227882 nodes and 445227 elements) circulation model was configured. Model bathymetry was interpolated from the NGDC's ETOPO2 data. The amplitudes and phases of eight major tidal components estimated by the ADCIRC model were compared with those derived from the TPXO 7.2. Results indicated that the spatial distributions of the major tidal components (M2, S2, K1, and O1) from ADCIRC were consistent with TPXO7.2. During Hurricane Harvey (2017), the ADCIRC model using either the CFSv2 or NHC derived data satisfactorily produced the cyclonic winds, centered low-pressure, and hurricane tracks. The hurricane went across the Caribbean Sea and reached the Texas coast on August 26<sup>th</sup> of 2017. National Weather Service reported 3.66 m water level in the Aransas Wildlife Refuge along the Texas coast. The ADCIRC model using the NHC data predicted a high storm surge over 6 m behind the Bolivar Peninsula. This overestimation was due to the model's failure to accurately resolve the nearby barrier islands, which resulted in an excessive amount of water mass flooding into the adjacent

sub-bays. Our future work will calibrate and validate the ADCIRC model against the observed water levels collected from the Center for Operational Oceanographic Products and Services (CO-OPS) and International Hydrographic Organization (IHO). Moreover, the water level and storm surge produced by the ADCIRC model will be compared with the tidal gauge data from the NOAA Tides and Currents throughout the global ocean. Furthermore, additional efforts will be made to refine the model grid near the coast.

O10

**Extraction and Use of Chitin and its Derivatives for Effective Carbon Sequestration**

Preeti Sharma<sup>1\*</sup>, Benjamin Barnes<sup>1</sup>, Victoria Volkis, Ph.D.<sup>1†</sup>

<sup>1</sup>Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD, 21853

The regulation of anthropogenic carbon dioxide emissions is currently one of the most challenging environmental issues that many industrialized countries are being faced with due to increasing levels of atmospheric carbon dioxide and its influence on the climate change as one of greenhouse gases. Most of the methods for capturing CO<sub>2</sub> are irreversible methods, in which CO<sub>2</sub> is permanently linked to the absorbent, and as a result a new environmental problem is created. Therefore, it is necessary to prepare a reversible CO<sub>2</sub> sorbent, which can be reused after releasing previously captured CO<sub>2</sub> back under mild conditions to other industrial process such as carboxylation reactions, algae growing reactors and more. Chitin and chitosan are biopolymers with vast structural possibilities for chemical modifications to generate good sorbent for carbon capture. However, their hydrophilic nature leads to swelling of the sorbent during the sorption of wet carbon dioxide, which significantly reduce the active surface. Blends with polysulfone were used to help counteract the swelling of the chitosan followed by CO<sub>2</sub> sorption. Some of blends that only contain 10% of chitosan have shown as high sorption capacity, as pure chitosan, due to significantly decreased swelling. Recent study has shown that the molecular weight of chitin has a significant influence on its sorption properties. To further investigate it, acid hydrolysis of chitin is performed to prepare multiple fractions of lower than natural molecular weight oligomers for better solubility

and more convenient blending. Carbon dioxide sorption data, as well as hydrolysis process and its UC/Vis and SEC characterization will be discussed.

O11

### Identifying Students Education Problems

Samit Shivadekar,\* Yelena Yesha, Ph.D

University of Maryland Baltimore County, Baltimore, MD

Mining social media data is helpful to researchers in learning analytics, educational data removal, and learning skills. It provides a way to examine social medium statistics that conquer the main restrictions of both physical qualitative analysis and huge scale computational study of user produced textual content. This study is beneficial to researchers in learning analytics, educational data mining, and learning technologies. It provides a workflow for analyzing social media data for educational purposes that overcomes the major limitations of both manual qualitative analysis and large scale computational analysis of user-generated textual content. For this classification we used Naive Bayes Classifier. It notifies educational manager, and other applicable assessment makers to expand further accepting of engineering student's institution understanding.

The research goal of this learning are: 1) to make the huge amount of data useful for educational purposes, combining both qualitative analysis and large-scale data mining techniques, and 2) to examine engineering students informal tweets on twitter in order to analyze the issues and problems faced by engineering students in their life

We selected engineering student problems for our study. The major reasons were:

1. Engineering schools and branch have long been stressed with student employment and preservation topics. Colleges face problems with student recruitments and retention issues,
2. Engineers (IT industry) comprise a paramount part in growth of GDP of nation and have a direct impact on the nation's financial expansion so their academic problems must be tackled,
3. Predicated on understanding of student's issues and quandaries, policymakers, educators and difficulty decision makers can make more knowledgeable conclusions on proper interference and services that can help students to conquer obstacles and barriers in education and help the student to solve the problem, and

4. Twitter is a well-liked social media site. Its content is often public and very brief, not more than 140 characters per tweet. Twitter provides free APIs that is acclimated to stream data and allows developers to build upon and extend their applications in new and creative ways. To construct a data mining design or to involve in analytics research, the Streaming API is most suitable for such things. Therefore we choose to analyze student posts on twitter.

O12

### The Impact of Marijuana on University Students

Khaled Hasan, Ph.D.<sup>1</sup>, Olufisayo Oluwafemi<sup>1\*</sup>, Wilde Ketchatang<sup>1</sup>

<sup>1</sup> Department of Pharmacy Practice, University of Maryland Eastern Shore, Princess Anne, MD 21853

Marijuana is the most widely used illicit drug around the world especially among young people. The aim of the study is to determine the perceptions and attitudes of students at University of Maryland Eastern Shore School Pharmacy and Health Professions (UMES- SOPHP) towards marijuana and current knowledge on use, benefits and adverse reactions.

First and second year pharmacy students (SP1, SP2), and second year physical therapy (PT) students at UMES -SOPHPs were asked to complete a survey on marijuana. This survey assessed students' perceptions of the use of marijuana compared with alcohol and tobacco smoking, and evaluated their attitudes about the possibilities of marijuana-induced cancer and addiction.

One hundred ten students completed the survey. The response rate was 72% (SP1=42/60; SP2 38/59; PT=30/32). Thirty percent of students reported using marijuana at some point in their lives, versus the 70% of students have not tried or used marijuana (p=0.0001). The majority of the students (52%) have used marijuana between the ages of 13 and 19 years of old, and 33% of them started using marijuana between the ages of 20-25 years of old. These ages correspond with high school and university stages. Fifteen percent of the students have used marijuana for the first time between the ages of 13 and 19 years. Large number of the students believe that tobacco (66%) and alcohol (57%) are more harmful than marijuana. More than half of students (55%) considered that marijuana is addictive compared with 28% of students suggested that marijuana is not addictive. There was a

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significant number of students (68%) opposed the possibility of marijuana-induced cancer ( $p$  value $<0.05$ ).

With different perceptions, attitudes and growing widespread use of marijuana, university students should be educated and become more vigilant about the risks and benefits of marijuana.

#### Undergraduate Oral Presentations

O13

#### Designing Fractal Supercapacitors

Christopher Blanks<sup>1\*</sup>, Ben Barnes<sup>2</sup>, Dr. Kausik Das<sup>1</sup>, Mark DeMorra<sup>2</sup>

<sup>1\*</sup> Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

<sup>2</sup>University of Maryland College Park, College Park, MD 20742

In past decades, the application of fractals to electrode design for enhanced signaling and electrochemical performance was a popular subject and enabled the growth of consumer micro-electronics. Supercapacitors, which are energy storage devices with many promising characteristics, have largely grown alongside of such developments in electronics, but little work has been done to use fractal electrodes in supercapacitors. In this work, plane-filling and fractal patterns were used in designing laser scribed graphene supercapacitor electrodes, allowing us to examine any correlation of the scaling laws of capacitance with respect to the fractal order and complexity. We have created different nature inspired fractal structures including Koch, Hilbert, Sierpinski and Peano fractal supercapacitors by laserscribing graphene oxide to make conducting graphene electrodes. An interesting exponential relationship between capacitance and fractal order for the more open structured fractals was observed, the exponent of which was proportional to the Hausdorff dimension. Additional non-linear relationships between capacitance and order were observed for other structures which was correlated with inter-plate repulsion and differences in path length. Use of Polyvinyl acetate as a solid state electrolyte showed promising results in obtaining high charge storage density in these fractal supercapacitors. These findings provide the first step in maximizing the efficiency of fractal-based electrolytic devices by exploring the non-intuitive trends in capacitance with respect to fractal order and complexity. In future we will explore the effect of other solid state electrolytes on

capacitance and create layered 3D fractal supercapacitors.

O14

#### The Correlations Between Cultural Management and the Antioxidant Content in *Aronia mitchurinii* – Ten Years of Monitoring

Breann Hrechka<sup>1</sup>, Andrew G. Ristvey, Ph.D.<sup>2</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>

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*Aronia mitchurinii* is a new generation super-berry native to the North-Eastern U.S. and naturally cultivated in Eastern Europe. Previous studies have reported high content of flavonoids, polyphenols, anthocyanins and other phenolic antioxidants in *Aronia*. Much is known about the high antioxidant content in *Aronia* juice, however, its phytochemical content has never been correlated to cultural management conditions. These conditions encompass areas such as fertilizing, mineral additives, irrigation, age of the crop, and etc. Since 2006, UMES has been studying the effects of nitrogen treatment, soil moisture, organic versus conventional growing, mineral additives and other factors that influence the antioxidant content of juice and pulp of *Aronia*. The objectives of this study are: 1) to examine the effect of nitrogen treatment, soil moisture content, organic versus conventional fertilizer exposure and mineral additives on the yield, pH brix and antioxidant content and profile in *Aronia mitchurinii* juice, 2) to develop best practice regarding the growing and cultivation of *Aronia mitchurinii*, and 3) to provide a longterm monitoring data addressing among others also the age of the crop. Results since 2006 will be briefly reviewed and analyzed in this presentation.

O15

#### Identification of Phosphatidylserine Translocation Mechanisms as a Marker of Cell Death in Bacteria

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While prokaryotes do not undergo programmed cell death (e.g., apoptosis and necrosis), bacterial cells challenged with antibiotics have been shown to exhibit similar phenotypes of cell death seen in multicellular organisms. For example, the classic AnnexinV assay detecting exposure of the phospholipid, phosphatidylserine, can be used to monitor this phenotype in *Escherichia coli* stressed by bactericidal antibiotics. This project involves developing a new version of the AnnexinV assay where phosphatidylserine translocation to the outer membrane is first detected by luminescence following complementation of a split luciferase enzyme, and loss of membrane integrity can then be detected using fluorescence. This assay will allow us to answer the question of whether phosphatidylserine translocation to the bacterial surface is actually occurring, specificity that is not present in the classic assay. To complement this assay, The Violet Ratiometric Membrane Asymmetry Probe will be used to broadly look at changes in the cell membrane under stress. We expect to see wildtype cells exhibiting these characteristics when the antibiotic is introduced and loss of this phenotype in resistant cells.

O16

**Real-Time Aerosol Particle Measurement Methods:  
Air Quality Analysis**

**Francis Oyebanjo**<sup>1\*</sup>, Akua Asa-Awuku, Ph.D.<sup>1</sup>

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Aerosols are a major contributor to air pollution. These atmospheric particles have adverse effects on the environment and human health. Particles less than 2.5 microns are known to deposit in respiratory airways. Anthropogenic (human-made) particles are mostly found in urban air near highways and factories. These particles can lead to decreased lung function, irritated breathing and, in severe cases, nonfatal heart attacks. The aim of this study is to quantify and compare real time particle measurements with different model condensation particle counters (CPCs) of varying fundamental technologies. The efficiency of each CPC is examined at different instrument settings for compounds of both known and unknown compositions. The devices are then field tested on campus and in suspected regions of poor air quality. The reported concentration of small particles is modified by the aerosol composition. The water based CPC counts fewer particles than its butanol

counterparts. This is due to the fact that instruments with lower particle detection limits tend to count more particles.

O17

**Olfactory Decline in Mouse Models of  
Alzheimer's Disease**

**Michael Ray**<sup>1\*</sup>, Ricardo Araneda, Ph.D.<sup>1</sup>

<sup>1\*</sup> Department of Biology, University of Maryland, College Park, MD 20742

Alzheimer's disease (AD) is a neurodegenerative disorder that is a form of fronto-temporal dementia. One of the proposed causes of AD is tauopathy, a condition in which the tau protein, a structural protein in neurons, builds up abnormally, thereby disrupting neuronal communication. In humans, a mutation on chromosome 17, the P301L mutation, is proposed to be one of the causes of this tauopathy. Interestingly, one of the earliest detectable symptoms in AD, before major neuronal degeneration, is impaired olfactory discrimination; however the link between this impairment and the onset of AD is not known. The olfactory bulb (OB) is the first part of the brain that processes olfactory information. Circuits within the OB produce the neural computations necessary for odor discrimination. Anatomically, the OB is divided into two regions, the main olfactory bulb (MOB) and accessory olfactory bulb (AOB). The MOB processes natural odors that are associated with food or predators, while the AOB processes social odors that are associated with mating and aggression. The goal of this research was to analyze how and when olfactory behavior changes in the mouse model of tauopathy, the rTg4510 mouse. This transgenic line models the P301L mutation in humans and can be used as an animal model of AD. Standard behavioral assays were conducted to test olfactory discrimination in the rTg4510 mouse. One such assay, the habituation-dishabituation test was analyzed with structurally similar odor pairs using mice of different ages. By analyzing this assay, we will be able to determine when the earliest signs of AD occur in this mouse model. By analyzing the differences in olfactory behavior between mice of different ages for both natural and social odors, we will be able to determine when the earliest signs of AD occur in this mouse model. Our results show that as the mice age, olfactory discrimination of natural and social odors declines significantly. This indicates that circuits in the OB could be affected prior to neuronal degradation and used as an early onset sign in AD. Further tests will need

to be conducted to examine the underlying cellular processes that cause the OB deficits.

O18

**UV-Vis Analysis of Interaction of Adenine and Vitamin B6**  
**Yasmin Roye\***, Uche Udeochu, Ph.D

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At pH 7.0, adenine and pyridoxine were analyzed using ultra-violet-visible spectroscopy (UV-Vis). The question was posed to further understand the biochemical cellular activities. What role do the small molecules such as pyridoxine, a derivative of vitamin B6, play in this subject? The level of adenine in the human body can serve as a marker for body's susceptibility to metabolic disorders and diseases. Vitamin B6 deficiency or its inefficient usage is associated with microcytic anemia, neuropathy, and weakened immune. Both have been documented to be highly electrochemically active. Samples were scanned between 200 and 800 nm using the UV-visible light DU Spectrophotometer. Six solutions of adenine were taken from stock (0.01 M adenine), increasing from  $1 \times 10^{-4}$  M to  $6 \times 10^{-4}$  M. Six solutions of pyridoxine were taken from stock (0.001 M pyridoxine), increasing from  $4 \times 10^{-6}$  M to  $4 \times 10^{-5}$  M. These, respectively, were made with a pH 7.0 sodium phosphate buffer and were used to plot the absorbance spectrums. While controlling the concentration of adenine at a constant value, mixed solutions of adenine and pyridoxine were prepared by adding incremental volumes corresponding to increasing concentrations of pyridoxine to adenine. UV-Vis spectral results showed that adenine and pyridoxine absorbs at 260 nm and 314 nm respectively, and the two compounds obeyed Beer's law with molar absorptivity of 0.000771 L/mol x cm and 0.00068 L/mol x cm, respectively. UV-Vis spectra of adenine-pyridoxine complex showed absorptivity of 0.001741 L/mol x cm. A double reciprocal plot using UV-Vis data for adenine-pyridoxine was linear. The linearity of the plot justified that a 1:1 complex of the two compounds was formed, and the binding constant (k) was determined to be  $2.9135 \times 10^{-1}$ . However, further Raman analysis will be required to characterize the mode of interaction between the two compounds.

O19

**Contribution of the PTS Beta-glucoside EII transporter to the pathophysiology of the Group A Streptococcus**

**Aliyah B. Silver\*** and Kevin S. McIver, Ph.D.  
Department of Cell Biology & Molecular Genetics and Maryland Pathogen Research Institute, University of Maryland, College Park, Maryland

*Streptococcus pyogenes* (Group A *Streptococcus*, GAS) are gram-positive pathogens capable of causing a variety of noninvasive and invasive infections in humans. In order to remain a successful human pathogen, GAS must sense, interpret and react to cues in its environment. Nutrients, specifically carbohydrates, are particularly important environmental signals due to their abundance in the human host and the absence of a functional TCA cycle in GAS. A link between sugar metabolism (mediated by the phosphoenolpyruvate-dependent phosphotransferase (PTS) system) and virulence has been established in GAS, where PTS-deficient GAS resulted in increased lesion size and severity in a mouse model of infection. Screening of insertional inactivation mutants generated in all 14 PTS EII transporters of MGAS 5005 in blood revealed the betaglucoside EII as an EII with particularly interesting phenotypes that indicate its importance in overall GAS pathophysiology. Here, we generated non-polar allelic exchange mutants in all genes of the beta-glucoside EII genetic locus in M1T1 5448 and characterized the contribution of each to overall GAS pathogenesis through further functional analyses. This study indicates that each gene of Beta-glucoside genetic locus contributes differently to overall GAS pathophysiology.

O20

**Analysis of the *Leishmania*-Human Macrophage Dual Transcriptome Investigation of Host-Pathogen Interactions**

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*Leishmania major* is a protozoan parasite responsible for an infectious disease known as Leishmaniasis. Leishmaniasis, which is spread by infected sandflies, predominantly affects South America, Africa, and the Middle East. The intracellular parasites primarily reside in host macrophages and are unsuccessfully eradicated by the host immune system. RNA-sequencing tech-

nique allows researchers to profile the transcriptome of an organism and identify gene expression levels. Using RNA-sequencing datasets generated in our lab from *Leishmania*-infected human and mouse macrophages, differential gene expression can be observed both in the parasites and their host cell. In this study, we analyzed genes that were differentially expressed in both the human and mouse *Leishmania*-infected macrophages with the aim to identify a subset of those genes not present in non-pathogenic trypanosomatids. Filtering this RNA-sequencing dataset will allow upregulated genes specific to *L. major* to be further investigated—allowing researchers to better understand the infection and survival mechanisms used by *Leishmania major*.

O21

**Effect of Direct Drive Flapping Mechanism on MAVs Flapping Frequency**

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For years, the challenge of flight with multi-rotor Unmanned Aerial Vehicles (UAVs) is that the larger the size of the UAV, the less efficient the device becomes. This is because this sort of UAV requires much more energy for each of its rotors, and subsequently, has a lot more maneuverability. Looking into other methods of flight for smaller UAV's can help with maximizing the energy used. This research looks into the concept of flapping wings to eventually be able to incorporate it into drone technology that parties can use to make drone flight more accessible. By using a high-speed camera and recording marked points of deflection on a "dummy" wing, the data generated can be quantified into a working model to study other wing shapes that are more aerodynamically and energy efficient.

O22

**"Kidney-on-a-Chip": Modeling In Vivo Tubular Networks**

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The human kidney is characterized by a significant anatomical complexity. In the kidney's functional unit, the nephron, blood and urine flow in adjacent, sinuous tubules, having specific interactions. Researchers have met difficulties in accurately modeling these environments. Challenges remain in recreating the permeability, microcurvature, heterogeneity, and tortuosity of the tubules. This study team's approach to addressing these issues involves using 3D printing-based fabrication and suspended microfluidics to create semipermeable, tubular structures with tortuous microarchitectures. This specifically entails: 1) creating the tubular framework using PolyJet 3D printing and 2) coating the printed channels with permeable, biocompatible material. Recently, we have printed prototypes with varying microcurvatures. We have encountered difficulty in clearing these devices, but we intend to clear at least one from each configuration for further testing. With iterative designing and testing, we hypothesize that these devices will better model the proximal tubules in the kidney's nephrons for applications in therapeutics research.

O23

**The Effect of Vagal Nerve Stimulation on Auditory Task Learning**

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Vagal nerve stimulation (VNS) involves electrically activating the vagal nerve to stimulate the release of key neuromodulators acetylcholine and norepinephrine throughout the brain, which increase forms of synaptic plasticity that underlie learning. VNS is hypothesized to promote auditory learning by enhancing adaptive brain activity, attention and memory. To investigate this conjecture, an initial control group of non-VNS ferrets were trained to discriminate four tonal variants of the Chinese Mandarin syllables "ma" and "di" to form a behavioral baseline for these tasks. The ferrets were trained to discriminate the flat contour tone from the other three tones and differential waterspout licking was used to measure their behavior through the Go-NoGo paradigm. The next step is to deliver VNS prior to task training to determine whether or not it affects learning. This research has vast applications, as vagal nerve stimulation could eventually be used to promote learning and memory in humans.

O24



**Relation of Trauma and Mood to Cognitive Functioning in African American College Students**

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Mood disorders have been found to impact up to 30% of the US population during their lifetime. African American and minority populations have been found to have higher incidences of these disorders. Cognitive and social stressors have been found to trigger mood problems in many individuals. The stressors often stretch individual coping abilities and yield a negative impact on their ability to function and problem solve. This study examined the relationship of past stressors and mood to the cognitive and problem solving functioning of African American college students. Entering college for the first time, often yield stressors associated with finances, social networks, academic work, and future goals. These stressors along with trauma from their life prior to college impact performance in memory and problem solving activities. One hundred Student volunteers completed self-report questionnaires examining mood and trauma. In addition, students completed two cognitive tasks that related to memory. The first was associated with long term memory for language the second a short term memory for visual stimuli task. The results suggest that the students' performance was impacted based on their mood status. A detailed analysis examined defensive style and the relation of mood symptoms.

O25

**Relation of Trauma and Mood to Coping Skills in the Functioning in African American College Students**

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Trauma is considered a significant issue that impacts the mood and social functioning of young adults and college students. Previous studies have reported more than 2/3 of incoming first year college students have experienced 2 or more significant traumatic incidents prior to entering their college studies. The same study reported 10% of these students possessed symptoms that would classify them as having PTSD. The current study examines the functioning of 100 college students at a historically Black university.

The student volunteers completed questionnaires associated with their mood functioning, exposure to trauma, and coping strategies. A detailed analysis examined the differences between individuals who were exposed to trauma and low exposed individuals in their mood functioning and use of various coping strategies. Results suggest that coping strategies differed between individuals based on level of exposure and presence of negative mood symptoms.

O26

**The Influence of Temperature on the Antioxidants Capacity of Juiced *Aronia Mitschurinii*.**

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*Aronia Mitschurinii*, also known as the black chokeberry, is a fruit-bearing shrub which is native to Maryland. The aronia berry has a dark purple color which can be attributed to the berry's extremely high content of anthocyanins. Antioxidants are an important nutrient needed for capturing naturally formed free radicals in living organisms, and prevention of oxidation and cancer formation. Aronia's reputation of being a super berry entices small farms to use it as a perspective specialty crop. The berry's high content of polyphenols also makes it a likely ingredient in several new products such as, organic teas and vitamin supplements. All food applications of any fruit require high temperature pasteurization as a major step during the fruit processing. There are three major effects higher temperatures can have on antioxidants; isomerization, decomposition or the loss of water. Here we present the data for the antioxidant content of *Aronia Mitschurinii* as a function of the variation in temperature and the time exposed to these temperatures. Detailed measurements and analysis of anthocyanin, flavonoids, polyphenol content and ORAC is presented and discussed. The aim of this project is to determine the optimal pasteurization and heating conditions that would avoid significant lost in the antioxidant capacity in aronia.

O27

**Followership from the Jonestown Survivors  
Perspective**

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In 1978, the United States witnessed followership devastation for the first time. It was the worst destruction of human life in a religious organization—Jonestown's Peoples Temple. The murder-suicide consisted of the very act of drinking grape Flavor Aid laced with cyanide – coupled with the assassination of five members of a congressional party at a nearby airstrip and the slashing deaths of a mother and her three children in the Temple's headquarters in Guyana's capital city of Georgetown. This took the lives of 918 men, women, and children. But, there were those who survived the worst destruction of human life in a religious cult in the United States at that time. The story of the survivors began that day. To be a survivor of Peoples Temple is to have been a follower of Jim Jones. For the purpose of this research, followers were generally defined as subordinates with little to no authority who eventually fall into line. Studying the survivors of Jonestown presented an opportunity to capture their viewpoints as they relate to followership. The participants became a source of empowerment that could be seen as reflecting alternative scientific paradigms by acknowledging reality as being filtered through multiple lenses instead of emphasizing the importance of scientific objectivity and interpersonal detachment.

The purpose of this qualitative study was to explore the perceptions and attitudes of the survivors as they relate to the Peoples Temple massacre at Jonestown. Several major themes emerged that supported key concepts in followership, charismatic, and self-sacrificial leadership theories. One of the themes in the analysis of the participant's transcript, which was particularly prominent was "Willful Blindness to Unscrupulous Leadership. Using a three-tiered construct presented insight into the various reasons why Jim Jones' bad leadership was disregarded on many levels. The categories are as follows: Willful Blindness to Unscrupulous Leadership a) due to commitment to what the individual considers the greater cause; b) for personal

gain; and c) due to powerlessness as a result of being consumed by fear and hopelessness. More specifically, this describes Jim Jones' deception and internal turmoil experienced by members of Peoples Temple. As followers, their commitment was to the agricultural project more so than the leader.

In organizations of every kind, there remains a need to explore leader/follower relationships and the characteristics of charisma and powerlessness that leads to unquestioning member loyalty. Most leadership theories are largely leader-centric with followers only recently entering into the equation, thus creating a major paradigm shift. In order for followers to be motivated and committed, they must understand their role, purpose, and contribution to the overall success of an organization. Followers of charismatic leaders willingly surrender to the domination of the leader because the sacred character of the relationship makes such compliance honorable. However, exploited honor creates a toxic breeding ground for followers.

## University of Maryland Eastern Shore 2018 Graduate Education Week

Poster Presentations Session I: Faculty All Disciplines (Abstracts P01)

Tuesday April 17, 2018 9:00 AM - 10:30 AM, SSC Ballroom

### Faculty Poster Presentations

P01

#### Assessment of a Student Pharmacist's Validated Tool for Planning Public Health Projects in a Required Course

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The Center for the Advancement of Pharmacy Education educational outcomes include health promotion and disease prevention competencies. Yet, there is limited validated tool to guide students. Evaluate the utility of an assessment, development, and assurance: pharmacist's tool (ADAPT) for students to plan public health projects in a required course. Students are assigned group projects, including the design, development, and plan for implementation and evaluation of a solution to address a self-identified public health problem. Students used an ADAPT tool, a published instrument for ensuring quality implementation of public health programs. A survey was administered afterwards to evaluate the usability and value of the ADAPT. Fifty seven students responded to ADAPT project survey. The average time to use the tool in planning the project is 21 minutes. Respondents indicated that tool is helpful to apply public health concept (n=54, 94.7%), relevant to course and public health (n=55, 96.5%), and help to focus the project (n=55, 96.5%). User satisfaction was found to be high with the majority indicating they would recommend to others and use again (n=54, 94.7%). Feedback include improving format (n=10, 17.5%) and minor revisions to some questions (n=16, 28.1%). Data also showed that the tool is valuable for planning as respondents reported it helped them to focus (n=55, 96.5%). With selection of multiple responses, participants recommend using this tool in multi-setting including community service-learning (n = 37, 64.9%) and advanced pharmacy practice experiences (n=31, 54.4%). Students responded positively to the usefulness and value of the ADAPT tool in planning public health projects. Students recommend using the tool either as published or with minor revisions. Further evaluation and revision of the tool for another cohort of students at additional schools may be helpful to enhance the tool.

### Graduate Poster Presentations

P02

#### Early Drug Discovery and Preclinical Evaluation of Fluorinated Enaminone Benzamides as Potential Antiseizure Agents for Drug Resistant Epilepsy

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Defined as "failure of a patient's seizures to respond to at least two antiepileptic drugs (AED) that are appropriately chosen and used for an adequate period to achieve sustain seizure freedom," drug resistant epilepsy (DRE) is becoming more of an increasing burden in the epilepsy community. Statistics show that about 25% - 40% of epilepsy patients are at risk of becoming drug resistant. As a result, there is a need for researchers to develop novel therapeutics to help in the management of DRE. A previously synthesized lead KRS-5-Me-OCF<sub>3</sub>, was shown to be active in the MES/scMET rodent seizure model and elicited its anticonvulsant effects by acting as a positive allosteric modulator of GABA at the BDZ site. The goal of our research group therefore is to develop a library of fluorinated enaminone benzamides and evaluate their anticonvulsant activity for DRE in animal models of seizure and also to determine their potential mechanism of action. A library of 14 fluorinated enaminone benzamides were synthesized in our lab using established synthetic methods to achieve products of quantifiable yield and of high purity. The *in vivo* animal studies and *in vitro* target studies is done through collaborations with the National Institutes of Health. The purified compounds are sent for animal studies where they are evaluated in various animal models of seizure including the 6Hz 44mA animal model of DRE. The compounds are also sent out for target screening to be analyzed in various antiepileptic drug target such as the GABA<sub>A</sub> receptor. Out of the library of 14 compounds 4 hit compounds have emerged with anti - seizure activities in at least one animal model of epilepsy. Of great importance is the anti - seizure properties of the 4 hit compounds in the 6Hz 44mA model of DRE especially THA 40 and THA 36 with outstanding pharmacological



profile. THA 40 possessed excellent 6Hz 44mA seizure suppressing abilities with early onset and long duration of action by protecting between 50% - 100% of the animals as early and 15 minutes and lasting through 2 hours. THA 36 on the other hand possessed similar pharmacological profile as levetiracetam, an AED prescribed as an add-on for DRE. The target studies show that the compounds are non – inhibitors of GABA<sub>A</sub> and BZP site receptors which is positive as the mechanism of action of AEDs at the GABA receptors is to act as non-inhibitors. From the results, the tested compounds have shown to be able to suppress seizures in animal models of DRE. We have also shown that the compounds have a probable mechanism of action by acting on the GABA<sub>A</sub> receptors in a non-inhibitory manner.

P03

**Effects of Heat Stress on Growth Performance of Broilers and Postmortem Metabolism and Quality Characteristics in Chicken Breast Meat**

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<sup>1</sup>Department of Agriculture, Food and Resource Sciences, University of Maryland, Eastern Shore, Princess Anne, MD 21853.

High environmental temperature can induce decreased broiler productivity and quality deterioration of chicken meat. Little information is available on the mechanisms causing the heat stress-induced meat quality deterioration. This study was aimed to determine effects of acute and chronic heat stress during the finishing period on growth performance of broilers and postmortem metabolism and quality of chicken breast meat. Male broiler chicks raised for 42 d were subjected to acute (A-HS; at 36 °C for 2 h at Day 42) and chronic (C-HS; cyclic temperature control at 32/25 °C for the last 2 weeks) heat stress. The effects of vitamin E supplementation against heat stress were also determined. Growth performance (feed intake, weight gain and feed conversion ratio) was determined during the growing period. At Day 43, breast meat was harvested at 0.25, 1, 3 and 24 h after slaughtering to determine parameters of postmortem glycolysis: pH, glycogen potential, adenosine mono-, di-, and triphosphates (AMP, ADP, and ATP, respectively), and AMP-activated protein kinase (AMPK) activity), protein oxidation, and total antioxidant

capacity. Quality parameters (color, water holding capacity, protein solubility, cooking yield and texture) were determined in the meat at 24 h postmortem. Growth performance was adversely affected by heat stress. A-HS and C-HS showed lower ATP, higher AMP/ATP ratio and higher AMPK activity at 1 h postmortem compared to the control without heat stress. Protein oxidation was increased by heat stress. At 1 h postmortem, pH was significantly lower in A-HS as its lactate content was significantly higher compared to C-HS and the control. The effects of vitamin E against heat stress were not observed. The rapid decline in initial pH and protein oxidation caused by heat stress could result in meat quality deterioration. However, no difference was observed in quality parameters among the treatments. This may be due to the high occurrences of woody breast/white striping in the meat regardless of the treatments. Woody breast/white striping are major quality defects in broiler breast meat and their incidence may not be related to heat stress.

P04

**The Necessity of Electrooculographic Accuracy as a Precursor to Virtual Reality Visual Testing**

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Visuospatial hemineglect is a condition following hemispheric brain damage that results in a lack of awareness of objects on the side contralateral to the damaged hemisphere. Previous studies have helped identify structures and pathways relevant to Hemineglect, as well as features of neglect such as a lack of visual tracking with the eyes to the neglected side. Other studies have shown that multi-sensory cuing may be beneficial in improving visual tracking in hemineglect, and virtual reality (VR) is a promising method of providing such multi-sensory cuing. Electrooculography is a procedure used to measure degree of eye movement. It can potentially be used to measure increases in eye movement toward the area of neglect and therefore, measure improvement in visual hemineglect. The accuracy and sensitivity of our electrooculography equipment will be verified by measuring the eye movement of normal subjects using computer generated targets.



P05

**The Probability of Disease Progression and Assistive Device Use in Amyotrophic Lateral Sclerosis**

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Amyotrophic Lateral Sclerosis (ALS) is a rapidly progressive motor neuron disease that results in functional deficits and the inability to ambulate independently<sup>1</sup>. Our aim is to identify data sources gathered during the practice of tertiary Physical Therapy care at the multidisciplinary clinic in regards to the relationship between disease progression, AD use, and functional mobility. Performance data and history of care was collected both from patients actively receiving physical therapy services at a local ALS multidisciplinary care and retrospectively from medical records analysis. The data collected to date suggests a significant relationship between the ALSFRS-R score and three mobility-related subscales (Turning in bed, walking, and climbing stairs). Further analysis shows that a sizable percentage of patients require an assistive device on their very first visit.

coded in the final ground state. However, the quantum adiabatic theorem states that when changing a system, the change has to be infinitely slow if one wants to keep the system in its instantaneous ground state. Our goal is to suppress computational errors in quantum annealers arising from parasitic excitations induced by finite-time driving. A rather recent tool-kit from quantum control provides a way to suppress such computational errors. Dubbed "shortcuts to adiabaticity" these methods provide means to implement fast processes with the same, error-free outcome that would result from infinitely slow driving.

The most prominent example of quantum annealers is the DWave machine. Its chip can be well-described as a quantum Ising model in the transverse field. Previous work has studied how to implement shortcuts to adiabaticity for global changes of the magnetic field. For realistic applications, however, such as in the DWave machine one is rather interested in only local changes of the field, i.e., in control of single qubits rather than flipping all qubits at the same time. Therefore, our work focuses on deriving shortcuts for such local perturbations. The quantum Ising model can be mapped onto "stacked" avoided crossing, which are commonly on as the Landau-Zener model. This model is the best studied example for the dynamics of qubits, and thus it provides a natural entry point into the analysis. Already our first results revealed interesting issues arising from local perturbation: for global changes the energy diagram is fully determined by avoided crossings; for local control, however, the energy diagram is comprised of avoided crossing and diabatic crossings of the energy levels.

P06

**Shortcuts to Adiabaticity for Single Qubit Control in Quantum Annealers**

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We have been using devices to compute for more than two millennia. However, the classical paradigm of computing has reached a dead end. According to Moore's Law, the density of transistors has been doubling every two years, or so. Yet, the most recent technologies have reached densities comparable to atomic scales. Thus, to keep further improving an entirely new paradigm of computations will be instrumental. A promising development is Quantum Computers which are exponentially more powerful than their classical ancestors for certain tasks. Among many proposals for viable platforms for quantum computation, so-called quantum annealers are good candidates. Quantum annealers are prepared in a known ground state and then slowly evolved to the final configuration. Thus, the outcome of the computation is en-

To keep things simple, we study a one-dimensional chain with periodic boundary conditions. In such an arrangement, we will be able to see the perturbation wave travel, meet, and interfere – and the diabatic crossings are a signature of these effects. Our main goal is to show that the control fields can be limited to the sound cone, i.e., we only need to suppress excitations where they can have traveled, but nowhere else. This is in stark contrast to previous proposals, which found highly-involved, long-range control fields. A better understanding of local control will lead to the development of a more efficient and easier way to achieve better "Shortcuts To Adiabaticity" that will be realistic and fast enough to be useful.

P07

**Real-time Ultrasound Assessment of Articular Cartilage Thickness of the Trochlear Surface**

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Knee osteoarthritis (OA) is a widespread pathology often requiring joint replacement surgery. The articular cartilage (AC) can be examined clinically using real-time ultrasonography (RTUS) and previous studies have found that AC is appreciable with good interrater reliability for assessing articular cartilage thickness (ACT). The aim of this study is to examine the ACT of the trochlear surface in three locations: medial (MTS) and lateral surface (LTS) and notch of 20 to 60 year olds with and without knee pain and to examine if correlations exist between ACT, lower extremity (LE) alignment and age. Volunteers included 45 subjects (11 M, 34 F), mean age 35 yrs (23-59), height 167.2 cm (154.0-192.5), mass 77.1 kg (50.5-137.1), BMI 27.7 kg/m<sup>2</sup> (19.63-50.5). Subjects were stratified by 10 yr increments for group analysis (20-29 n= 21, 30-39 n=9, 40-49 n=8, 50-59 n=7). RTUS was used to measure MTS and LTS, and notch ACT at 90° knee flexion. A linear transducer (7.5-12 MHz ) was placed in short axis over the trochlear surface. Standing LE frontal and sagittal plane alignment were calculated using photographs and ImageJ. Physical performance assessments (5-Time Sit to Stand (5STS) and 30-second Sit to Stand (30STS) were performed to assess LE strength and endurance, activity level was calculated from a questionnaire. Trochlear ACT (cm) for LTS was 0.24 (0.04), notch was 0.36 (0.07), and MTS was 0.23 (0.04). The 5STS was 10.66 sec (3.15) and 30STS was 16 (4) repetitions. LE Alignment for Q-angle, tibiofemoral angle, and recurvatum were 163.17°(6.22), 166.65° (3.18), and 1.11° (5.37) respectively. One way ANOVA with Tukey post hoc testing revealed no significant difference in trochlear surface ACT between age groups. Pearson correlation showed a low significant correlation between age and MTS ACT, -.36 (P=0.05). No significant correlations were found between ACT and tibiofemoral angle, Q-angle, or recurvatum. (P=0.05). Significant differences existed in ACT in all subjects for MTS, LTS, and notch (P=0.05). There is no evidence to support a relationship between ACT and age or LE alignment. The ACT across the trochlear surface is not uniform at LTS, notch, and MTS and values may vary depending upon site of examination.

P08

**Molecular Modeling Revealed the Drug Resistance of Alternatively Spliced Isoforms of PI3K $\delta$  and FGFR3 in Prostate Cancer**

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Prostate cancer is the most commonly diagnosed cancer and second leading cause of cancer-related deaths among American men. Notably, African Americans (AAs) exhibit 1.6-fold higher incidence and 2.4-fold higher mortality rates of prostate cancer (PCa) when compared to European Americans (EAs). In addition to socioeconomic influences affecting access to health care, emerging evidence suggests that biological risk factors may also play a critical role in promoting the PCa disparities. Previously, integrative genomic approaches were applied to identify alternative splice variants between AA PCa and EA PCa clinical samples. Hundreds of oncogenes and tumor suppressor genes were identified to exhibit differential mRNA splicing patterns between AA and EA PCa specimens, suggesting that aberrant mRNA splicing may account for, at least, part of the aggressive phenotypes in AA PCa. This study particularly focused on the potential functional impacts of aberrant splicing in two oncogenes, *PIK3CD* and *FGFR3*, which encode Phosphatidylinositol-4,5-Bisphosphate 3-Kinase (PI3K $\delta$ ) and Fibroblast Growth Factor Receptor 3 (FGFR3), respectively. Microarray and RT-PCR data have demonstrated that exon 20 and exon 14 were skipped in *PIK3CD* and *FGFR3* transcripts, respectively, in AA PCa. The study further employed 3D protein modeling programs (including UCSF Chimera, Jmol, and SwissDock) and online server ( SWISS-MODEL, I-TASSER) to investigate the tertiary structures of the alternatively spliced isoforms PI3K $\delta$ -L (full-length), PI3K $\delta$ -S (exon 20 is missing), FGFR3 -L (full-length) and FGFR3-S (exon 14 is missing). The molecular modeling results have revealed that the amino acids encoded by exon 20 play crucial role for CAL-101 (a PI3K $\delta$ -specific inhibitor) docking to PI3K $\delta$ , indicating that exon-skipping event observed in PI3K $\delta$ -S may consequently promotes the drug resistance in AA PCa. Moreo-



ver, our molecular modeling results have demonstrated that skipping of exon 14 in *FGFR3* transcript (resulting in aberrant spliced isoform *FGFR3-S* in AA PCa) may cause the conformational changes due to the missing of activation loop (a regulatory domain) in *FGFR3*. As a result, this structural change could cause a constitutive activation of the tyrosine kinase domain in *FGFR3*, consequently enhancing *FGFR3* activity and promoting drug resistance. In conclusion, study results have provided molecular insights of the alternatively spliced isoforms in promoting PCa aggressiveness and drug resistance in AA population. These results will further facilitate the development of precision biomarkers and novel therapeutic strategies for detecting and treating aggressive PCa disease.

P09

**Development of an Assessment of Empathy Tool Toward the Patient with Breathlessness: a Preliminary Case Report**

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Perceived empathy from the caregiver improves patient outcomes, patient compliance, and patient satisfaction while promoting provider fulfillment. The development of empathy during academic and clinical practice learning promotes the understanding of how various conditions may affect treatment delivery and functional outcomes. It is hypothesized that empathy in the physical therapy student towards a patient with breathlessness (SOB) may increase after experiencing a simulation of restrictive lung disease (RLDS) during physical activity. The assessment tool was developed using the Individual Reactivity Index (IRI), the Clinical COPD Questionnaire (CCQ) and open-ended questions. Inclusion/Exclusion criteria and protocol methodology were approved by the Univ. MD Eastern Shore IRB. Five students were assessed for empathy before and after two six minute walk tests (6MWT), the first without RLDS and the second with the simulator; a Threshold IMT<sup>®</sup>. Baseline demographics and physiological measurements were taken and the simulator set to require 30% of maximal inspiratory pressure for tidal breathing. Vital signs, end-tidal carbon dioxide (E<sub>T</sub>CO<sub>2</sub>), Modified Borg Dyspnea Scale (MBDS), and Rating of Perceived Exertion (RPE) were recorded at predetermined intervals during and after

the 6MWTs. Participant demographics: n=5; 3 females; age: 25-30 years; 3 Caucasian, 1 African-American, 1 Asian. Normal vital signs, maximal inspiratory pressure, gait, balance, and negative PAR-Q. Physiological responses to 6MWT w/ RLDS compared to post 6MWT w/o RLDS, subjects displayed mean differences in SBP (7.64%, 4.2-13.3), HR (11.2%, 3.3-25.2) and 6MWT distance (4.56%, -11-+23.3). The IRI decreased slightly (50.22 pre to 48.44). All subjects expressed increased empathy for patients with breathlessness in open-ended and SOB symptomatology questions. RLDS induced cardiopulmonary stress which may have led to increased awareness of breathlessness. Although the IRI empathy assessment did not demonstrate much change, there is evidence of increased empathy in subjective open-ended questions. The assessment tool and protocol could be refined for query clarity and technical processes.

P10

**Neuroendocrine Differentiation Induces T-Type Ca<sup>2+</sup> Channel Expression that alter Response to Chemotoxic Agents in Prostate Cancer Cells *In Vitro***

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Neuroendocrine differentiation (NED) has been associated with the progression of prostate cancer (PCa) to an androgen resistant (AR) phenotype. NED evokes a significant increase in T-type Ca<sup>2+</sup> channel expression, resulting in changes in Ca<sup>2+</sup> homeostasis. AR PCa becomes resistant to treatment with antimitotic agents docetaxel (DTX) and etoposide (Etop), leading to increased mortality. In this study, we investigated the role of T-type Ca<sup>2+</sup> channel expression in promoting chemoresistance to antimitotic agents in PCa cells undergoing NED *in vitro*. Experiments were performed in LNCaP cells, a PCa-derived cell line. Stimulation of LNCaP cells with IL-6 and FSK evoked an increase in the molecular and functional expression of T-type Ca<sup>2+</sup> channels. Treatment of undifferentiated LNCaP cells with DTX (100-1000 nM) or Etop (1-50 mM) caused a concentration-dependent decrease in cell viability. DAPI staining indicated that DTX treatment also evoked a significant increase in the number of apoptotic cells in control cells, but not in cells undergoing NED. LNCaP cells undergoing NED expressed increased resistance to DTX (or Etop) treatment. To test whether this increased resistance

could be regulated by changes in the  $Ca^{2+}$  homeostasis, we investigated the effect of blocking the T-type  $Ca^{2+}$  channel. The resistance to DTX (or Etop) in differentiated cells was reduced following inhibition of T-type  $Ca^{2+}$  channel function with  $NiCl_2$ . The role of apoptosis and autophagy as contributing factors were also investigated. Based on the results from immunoblot analysis, increased resistance to DTX is not caused by changes in the expression of the anti-apoptotic protein bcl-2. Chemoresistance to DTX (or Etop) likely involves the development of autophagy as indicated by increased expression of the autophagic protein LC3. Inhibition of autophagy with chloroquine or 3-MA results in significant reduction of cell viability in NED cells, and further treatment with DTX (or Etop) made no significant difference. These results demonstrate that increased expression of T-type  $Ca^{2+}$  channels and the resulting changes in  $Ca^{2+}$  homeostasis regulates the chemoresistance of PCa cells undergoing NED *in vitro*.

P11

**Non-steroidal Anti-inflammatory Drugs (NSAIDs) Usage in the United States: What Do Consumers Need to Worry About?**

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Non-steroidal anti-inflammatory drugs (NSAIDs) are among the most widely used drugs. Access to these drugs over the counter make them easily accessible to the public. However, there is a large knowledge gap concerning the adverse effects of these drugs, some of which are life-threatening. Due to the serious side effects of NSAIDs, these medications are also called "silent killers." Statistics will be presented concerning the trend of NSAID use in the United States in addition to common adverse health effects. The poster will communicate signs and symptoms that need to be closely monitored to prevent adverse health outcomes.

P12

**Understanding the Population Dynamics of Arthropod Pollinators and their Host Preferences to Mitigate Food Insecurities at the UMES Campus**

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An estimated 85% of the world's flowering plants depend on insects for pollination. Pollinator populations are shrinking due to 4Ps' (i.e., Pesticide, Parasite, Pathogen, and Pollution). This decline is contributing to food insecurity worldwide. University of Maryland Eastern Shore (UMES) has developed a Pollinator Habitat Enhancement Plan (PHEP). The main objective of PHEP is to establish a flower-rich habitat within or around the UMES campus to increase the availability of pollen and nectar resources. Along with this main objective, this study designed two specific objectives: (1) To understand the population dynamics of arthropod pollinators and (2) to study host preferences of arthropod pollinators. The experiments were designed in randomized block design with three types of flowers (zinnia flower, sunflower, and mixed flowers) and three replications. The number of visiting pollinators were recorded in each plot and correlated with flower type. Sunflower plants were visited by significantly greater numbers of honey bees, bumble bees, soldier beetles, small bees and a few butterflies. In zinnia flowers, significantly fewer small bees and honey bees were recorded than in sunflower plants, but there was a higher number of butterflies and moths in zinnia flowers than in sunflower plants. The mixed flowers comprise both zinnia and sunflowers plus six other flower species. The population of the pollinator recorded in mixed flowers was two times higher than the population recorded in zinnia and sunflowers. The population dynamics and composition of the pollinator is positively correlated with the maturity of the flowers during the first season of the experiment. The experiment is in progress and will continue for the next two seasons.

P13

**The Efficacy of a Field Collected Fungal Pathogen Against Green Stinkbug in Maryland**

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Naturally occurring entomopathogens are important regulatory factors in insect populations and they are key components of integrated pest management (IPM) programs. Many species are employed as biological control agents of insect pests in many farming systems. Researchers are continuing to look for the aggressive entomopathogen that could be employed in IPM. In this study, the objectives were to: 1) test the ability of field-collected fungi to kill green stinkbugs, *Chinavia halaris* (Say) (Insecta: Hemiptera: Pentatomidae), a very important pest of soybean in the Delmarva region, and 2) isolate and identify field-collected fungi using molecular techniques. Field-collected entomopathogenic fungal strains were isolated from cadavers of kudzu bug. Based on their colony color they were identified as pink and white strains. The strains were assessed against adult and nymph green stink bugs in the laboratory. Serial conidial concentrations of the pink and white strains were pathogenic to adult and nymph green stinkbugs causing mortality of 75% (pink, nymph), 20% (white, nymph), 35% (pink, adult) and 20% (white, adult), respectively over a period of 3 days. More than 70% of the nymphs treated with pink strains were dead within 3 days of infection. Further tests are underway to identify the pathogen using molecular techniques and to test the effectiveness of the pathogen as a systemic endophyte, thus showing the pathogen is a real candidate as a biological control agent of hemipteran pests and are useful in IPM strategies.

P14

#### **An Assessment of Cybersecurity Practices in the US Farm and Food Systems**

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The growth in US agriculture and food production sectors is mostly attributed to innovative technologies that combines the use of sensors, information systems, advanced machinery, and integrated management systems to optimize production. Previous studies indicate that most of these technologies were not designed with cyber secure functionalities. In addition, these technologies tend to be less capable to handle or alert users when compromised situations such as hacking occur. The extreme vulnerability of the Industrial Control Systems (ICS) and the Smart Farming

Technology (SFT) platforms is critical particularly in terms of data collection through wireless sensor technology (WST). The goal of this study is to assess the emerging vulnerability/challenges (reliability, security and performance) of the big data collected through WST in food production particularly in smart farming. A literature review was conducted on technologies widely used in smart farming, food processing and packaging industries. Challenges related to ICS and SFT data were assessed. Lack of cyber risk awareness among industry operators, farmers and vendors; ICS protection, and insecure network systems are ideal situations for hackers to have access to those platforms through WST with a goal to corrupt data or disrupt operations of the food industries. There is a need to protect the ICS and sensitive data from hackers and prevent cybercrimes in US food industry and agricultural sector in general to extend the food safety and food defense culture to cybersecurity. The current policies lack specific guidelines on food safety-related cybersecurity issues. US farm businesses and the food industry need information and support to counter cyber-security threats in their operations.

P15

#### **Strongman and Strongwoman Athletes: Athletic Background, Training Styles, and Injury History**

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The first World's Strongest Man Competition was held in 1977 combining elements from other existing strength sports including powerlifting, highland games, and weightlifting, as well as historic traditional tests of strength and manhood. Since its inception, it has grown into a popular strength sport in the United States and other countries around the world. This sport welcomes athletes of all levels with different competitive divisions for men, women, teens, masters (age 40 and up), disabled, novice, amateur, and professional with multiple weight classes in each division, allowing athletes to compete with people of similar skill level and body weight. Since the sport of strongman and, now strongwoman, continues to expand at a rapid rate from its humble roots, there is a growing importance to understand who the athletes are that choose to train for and compete in strongman and strongwoman



competitions, in order to form a basis for research and therapeutics. As an emerging field of athletic endeavor that differs significantly from many other more traditional paradigms, it is lacking in all forms of study and most importantly, peer-reviewed research. To investigate the basic demographics and athletic development of strongman and strongwoman athletes of all levels, this study has developed and distributed a comprehensive questionnaire to determine the demographics, history, general health information, training status/schedule/environment, and comfort level of strength-skill athletes. A secondary goal is to analyze the psychosocial factors associated with training in the strongman/strongwoman community to determine factors critical to competitive success and injury avoidance. Results will indicate the associated training and psychosocial factors that are most prevalent amongst strongman athletes.

P16

**Functional Mobility Loss and Assistive Device Use in Amyotrophic Lateral Sclerosis**

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Amyotrophic lateral sclerosis (ALS) is a progressively fatal neurodegenerative disease that causes unpredictable declines in functional mobility. To date, little is known on how to slow or prevent this critical loss affecting both independence and quality of life. Examining possible avenues for improving patient mobility, the local patient population was studied using common measures found in natural tertiary care. The Timed Up and Go (TUG) and Gait Velocity (GV) tests are well established clinical tests of functional mobility and the Amyotrophic Lateral Sclerosis Functional Rating Scale - Revised (ALSFERS-R) is a universally utilized metric for quantitating disease progression. Using these measures, we retrospectively analyzed these values with respect to the onset of assistive device (AD) use to see if functional loss was slowed when an AD was used/present. Preliminary results show most patients receive an AD too late in the disease process to make a significant impact on functional mobility loss and that earlier prescription of an AD may prolong function.

P17

**Peak Expiratory Flow Rates in Patients with Amyotrophic Lateral Sclerosis Compared to Forced Vital Capacity as Predictors of Disease Progression**

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Amyotrophic lateral sclerosis (ALS) is a chronic neuromuscular disease characterized by progressive weakness, decline in function, and eventual respiratory failure. The early detection of respiratory decline and the need for medical intervention is critical to optimal care of patients with ALS. It has been previously shown that forced vital capacity (FVC) <50% may be a predictor of need for mechanical ventilation, as well as death in ALS patients. However, FVC may not be as sensitive in the detection of pulmonary decline as peak expiratory flow rate (PEFR), which would lead to earlier therapeutic interventions such as inspiratory muscle exercise, or non-invasive mechanical ventilation. The primary aim of this retrospective analysis was to explore the relationship among spirometric data in patients with ALS over the progression of the disease. The study assessed the rate of change in percent of predicted values in PEFR, FVC, and forced expiratory volume in one second (FEV<sub>1</sub>), and compared these rates of change. Comparison results over 29 months displayed an average rate of decline for FVC% predicted (-0.07208), PEFR% predicted (-0.09218), FEV<sub>1</sub>% predicted (-0.09926). There is a greater rate of decline in PEFR% predicted and FEV<sub>1</sub>% predicted vs. FVC% predicted over the course of disease progression. Non-parametric analysis of data showed that there was no difference between FVC% predicted and FEV<sub>1</sub>% predicted (p=.063, n=26) while there was a difference between FVC% predicted and PEFR % predicted (p=.004, n=27) and FEV<sub>1</sub> and PEFR (p=.007, n=28). The results of this study suggest that PEFR% predicted and FEV<sub>1</sub>% predicted values decline at a greater rate over time vs. FVC% predicted they may be more sensitive to detect disease progression and the need for therapeutic interventions compared to FVC% predicted. Although the rate of decline is similar between FEV<sub>1</sub>% predicted and PEFR% predicted, their significant difference may be due to small sample size and other technical factors.

P18

**Evaluation of Metabolic Responses during Lipid Starvation of an oyster parasite *Perkinsus marinus*: A Potential Alternative Model for Lipid Metabolism.**

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A laboratory is interested in understanding the response of *Perkinsus marinus*, a protozoan parasite of oysters, to lipid starvation. Previous work has shown that this parasite is capable of synthesizing its own fatty acids, as well as acquiring them from their host. The study seeks to understand whether the capacity to synthesize fatty acids is a means to generate membrane components during lipid starvation, or if alternatively if this biosynthetic capacity is supplemental to growth in an infected host. As citrate can serve as a source of Acetyl CoA, the study is also investigating the role of cytosolic aconitase as a potential regulator in this process, as there is evidence for phosphorylation of this enzyme to favor citrate production. No one, to our knowledge, has delineated the role of cytosolic aconitase in fatty acid biosynthesis. First, the impact of cell growth under a known fatty acid inhibitor, Triclosan was examined. There was a time dose dependent shift when cells were exposed to higher concentrations at longer time intervals. Following this, the study reviewed what would happen when the cells underwent lipid starvation. Differential mRNA gene expression was performed in *P. marinus*, in which cells were starved of lipids for 11 days, as compared to lipid replete cells. There was not a noticeable upregulation of FAL-pathway enzymes for saturated fatty acid synthesis, although citrate synthase was upregulated approximately 3-fold, consistent with allosteric activation of acetyl CoA carboxylase-1. Polyketide polyunsaturated fatty acid synthase and delta 5/ delta 6 fatty acid desaturase were upregulated by approximately 2-fold. Surprisingly, a number of enzymes involved in beta-oxidation were upregulated, which contrasted with the expectation that free fatty acids from triglycerides would be directed towards salvage pathways for membrane synthesis. Consistent with this, ACC-2 was down regulated 2-fold. Interestingly, maltose acetyl transferase was also upregulated 2-fold, implying that acetyl units from beta-oxidation may be re-directed to sugar acetylation. The implications of this complex interplay will be discussed, along with future experiments to address lipid and sugar metabolites present in this parasite

under lipid starvation conditions. Finally, the activity and phosphorylation status of aconitase-1 will be assessed under these conditions.

P19

**Floor Rise and Locomotion among Persons with Parkinson's disease**

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While considerable research has targeted gait, balance, and preventing falls in individuals with Parkinson's disease (PD), less is known about the ability to rise from the floor in this population. The aims of this study were to 1) Examine the relationship between locomotion and physical performance tests and the timed supine to stand performance measure and to 2) Identify both the time required and predominant motor patterns utilized by persons with PD to complete to floor rise transition. A cross-sectional design was utilized. Twenty community-dwelling older adults with PD (mean age 74.8 +/- 9.5 years; 13 men) performed a standardized floor rise test and locomotion tests in a structured task circuit. Subject demographic and anthropometric data were also collected. Statistical analyses included descriptive statistics and Pearson Product Moment correlations. Fifteen subjects (75%) demonstrated the crouch kneel pattern and fourteen (70%) used an all-4's strategy to rise to stand. The mean time to rise from the floor was 14.9 (+/- 7.6) seconds and slower than published norms for persons without PD. Nine subjects required the use of a chair to perform floor recovery. Supine to stand performance time was significantly correlated with locomotion and physical performance: Dynamic Gait Index ( $r = -0.66$ ;  $p < 0.002$ ), Five Times Sit to Stand Test ( $r = 0.78$ ;  $p < 0.001$ ), Timed Up and Go Test ( $r = 0.74$ ;  $p < 0.001$ ), and gait velocity ( $r = -0.77$ ;  $p < 0.001$ ). Findings of this study serve to enhance rehabilitation management for individuals with PD. Rising from the floor demonstrates concurrent validity with locomotion and physical performance tests. Floor recovery techniques can be incorporated in PD fall prevention initiatives in conjunction with bradykinesia and other symptom management.

P20

**Inhibition of Herpes Simplex Virus Replication in Differentiated Neuronal Cells**

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Herpes simplex virus (HSV), after primary infection of epithelial cells, can further infect neurons and establish latency within the sensory neurons of the trigeminal ganglia. The molecular mechanisms that establishes viral latency and viral reactivation are unclear. Previous observations showed that HSV infection decreased the neuronal excitability and the viral replication can be suppressed by increased excitability. It was known that the function of Dynamin will decrease when neurons were excited. Dynamin is a GTPase involved in the endocytic pathways and plays a role in actin assembly and reorganization. This can infer that Dynamin may contribute to viral replication. To test the hypothesis that Dynamin participated in the regulation of viral replication, infection using a Dynamin inhibitor, Dynasore was performed. The current objective is to observe the HSV replication inhibition when treated with Dynasore. *In vitro*, studies were conducted on a differentiated hybrid neuronal cell line, ND7/23. Infectious assays were conducted at multiplicities of infection (MOI) of 0.1 and 0.5 at various conditions. Cells were treated with Dynasore to observe inhibition of HSV. To analyze the inhibition of viral replication, plaque assays were conducted. In addition, the viral RNA from the infectious assays were isolated followed by Real Time quantitative-Polymerase Chain Reaction (RT-qPCR) assays to study the viral gene expression under the influence of Dynasore. Results of viral replication inhibition can shed light on the possible involvement of Dynasore as an anti-viral therapeutic treatment.

P21

**Effects of Early Heat Conditioning at Different Ages on Heat Stress Indicators and Metabolic and Quality Parameters in Broiler Breast Meat**

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Earth's surface temperature has increased due to global warming and adversely affected broiler production. Environmental temperatures over 30 °C are considered heat stress condition for broilers. Heat stress causes quality degradation of chicken meat. Early heat conditioning (EHC) is a technique utilizing the perinatal epigenetic temperature adaptation to improve heat tolerance of broilers. It exposes broiler chicks at 3 to 7 days of age to high temperature (35-38 °C) for certain time period (up to 24 h). The objective of this study was to determine the effects of EHC at different ages on heat stress indicators and metabolic and quality parameters in broiler breast meat. A total of 180 1-day-old broiler chicks in 30 pens were randomly allotted to 5 treatments: 3 EHC groups (3, 5, and 7-day-old chicks exposed to EHC at 35 °C for 6 h), positive (no EHC) and negative (EHC for 5-day-old chicks). All treatment groups, except for negative control, were subjected to chronic heat challenge (day time 32 °C/night 25 °C) for the last 1 week. All birds were raised on a corn-soybean basal diet with free access to feed and water for 42 days. Growth performance (feed intake, weight gain, feed conversion ratio) was determined during broiler production. At day 43, breast muscles were collected at 0.25, 2, and 24 h after slaughtering. Breast muscles were analyzed to determine heat stress indicators (heat shock protein-70 and protein oxidation) and parameters of postmortem glycolysis (pH, adenosine mono-, di-, and triphosphate, adenosine mono phosphate activated protein kinase and glycogen potential) and meat quality (color, drip loss, water holding capacity, cooking yield, lipid oxidation, and texture). Growth performance and parameters of postmortem glycolysis and meat quality were not different among the treatments. These results could be due to high incidences of woody breast with white striping (more than 65 %) observed in all the treatment, which have been identified as major quality defects for broiler breast. The results suggested that the incidence of woody breast and white striping may not be affected by environmental stressors such as heat stress.

P22

**The Influence of the X-Factor on Golf Performance: A Systematic Review**

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The X-Factor is a golf term that describes the rotation range of motion between the shoulders and pelvis during the golf swing. The impact of the X-Factor on golf performance is not fully understood. Golf instructors/coaches use different motor learning concepts and movement strategies, such as X-Factor enhancement, to facilitate a more effective golf swing. This systematic review analyzes current research evidence assessing the influence of the X-Factor on golf performance to determine whether this physical characteristic should be considered during training or rehabilitation programs. An electronic search of Medline, CINAHL, and PubMed was performed for all years up to 2017. Title and abstract, full-text, quality review, and data synthesis were performed by four independent reviewers. Studies were selected based on a predefined inclusion criteria. An initial search identified 105 studies. After applying the inclusion criteria, a total of 16 studies were retained for further analysis. The methodological quality of articles included were at the Sackett's level 2A and 2B. A positive relationship was identified between the X-Factor and golf performance measures including: ball velocity, driving distance, swing power, and club-head speed. In addition, the X-Factor was found to be greater in golfing professionals as compared to lower skilled golfers. The generalizability of these findings is limited due sample gender inequality. Male golfers were primarily studied and the methods used to measure the X-Factor varied among studies. The X-Factor seems to have positive associations with the performance variables studied in highly skilled right-handed male golfers. Further research is necessary to better understand the role of the X-Factor in female golfers and in those using a left-handed swing strategy. Interventions designed to improve the X-Factor should further be investigated.

P23

**Student Coaching in a Community-Based Fall Prevention Program on Maryland's Eastern Shore**

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Falls are a major cause of disability nationally. Fall episodes are linked to both fracture and fear of falling. The purpose of this study was to assess the effectiveness of a community-based fall prevention program, Stepping On, using seven student physical therapists in six rural senior centers on the Lower Eastern Shore of Maryland (Worcester, Wicomico, Somerset, and Dorchester Counties). Physical therapy students partnered with older adult participants to master exercises, strategize floor recovery techniques, and identify community safety barriers. Participants developed a personalized falls action plan. A descriptive survey tool assessed falls efficacy and program effectiveness. Statistical analyses included descriptive statistics and Chi-square frequency analyses. Significance was set at the  $P \leq 0.05$  value. One hundred and fifty-four older adults (Mean age:  $76.1 \pm 8.5$ ; BMI  $29.2 \pm 6.5$  kg/m<sup>2</sup>) completed Stepping On at six locations with physical therapy student coaches. Most were female (86.4%), lived alone (50.0%) and were taking four or more medications (74%). Thirty-eight participants (24.7%) had fallen over the past year. Several elders had sustained a critical fall event and were not able to arise from the floor. Subjects who lived alone were more likely to have fear of falling ( $p = 0.05$ ). Eighty-eight (57.1%) subjects noted they had less fear of falling following the community-based intervention; moreover, most subjects reported having an improved plan to arise from the floor after a fall (74.7%) and a better understanding of falls and their causes (83.1%). Fall action plan surveys cited the use of medical emergency alert systems and cell phones. Seniors commented that sit-to-stand (34.7%), tandem walking (16.2%), and hip abduction (10.9%) were the most beneficial exercises. Student partnering with seniors affords focused attention to master fall prevention strategies. Following a community-based fall prevention program, seniors have a better understanding of fall causes and have a plan to seek floor recovery assistance.

P24

**MicroRNA as Contributors to Prostate Cancer Disparities**

**Azah Mohamed<sup>1\*</sup>**, Yu Chih Chen, Ph.D.<sup>2</sup>,  
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Prostate cancer (PCa) has been the most frequently diagnosed cancer and the second leading cause of cancer deaths among American men. African American (AA) exhibit the higher rate of PCa morbidity and mortality compared with Caucasian/European American (EA). In addition to socioeconomic and environmental factors, accumulating evidences suggested that biologic and genetic factors may account for part of the observed disparities and influence the PCa recurrence and aggressiveness in AA population. MicroRNAs (miRNAs) are a class of non-coding endogenous RNAs that have been identified to play a role in variety types of cancers. In PCa, miRNA deregulation has been implicated in tumor initiation and progression through the regulation of the expression of target genes involved in multiple signaling pathways, including the ones contributing to tumor aggressiveness such as treatment resistance and metastasis development (i.e. through Focal adhesion, Insulin, P53, and mTOR signaling pathways). This study is designed to investigate/identify miRNA targeting pathways and evaluate the functional roles of the candidate miRNA-mRNA pairings in PCa aggressiveness. Furthermore, PCa cell lines (PC-3, LNCaP, VCaP, DU-145, RC-77, and MD PCa 2b) along with clinical samples (derived from AAs and EAs) were employed to validate the expression profiles of the candidate miRNA-mRNA pairings. From our initial analysis, 10 miRNAs ( has-miR-34a, hsa-miR-378a-5p, hsa-miR-130b, has-miR-96-5p, hsa-miR-99b-5p, hsa-miR-125b-2-3p, hsa-miR-572, has-miR-133a, hsa-miR-542-5p and has-miR-758) were enriched or depleted in AA PCa, which in turn contributes to differential activations of several oncogenic signaling pathways in AA PCa and EA PCa. In summary, our preliminary data suggest that miRNA-mRNA regulatory network may play a critical role in the PCa aggressiveness and drug resistance in AA patients, promoting the PCa disparities between AA and EA PCa.

Undergraduate Poster Presentations

P25

**The Effect of Inorganic Nitrogen Enrichment on Urease Activity within Agricultural Drainage Ditch Sediments**

**Skye Blake**, Sabrina Klick, Eric May, Ph.D.  
Department of Natural Sciences, University of Maryland

Agricultural drainage ditches are important management targets to reduce nutrient pollution entering the Chesapeake Bay. Fertilizer in the form of urea-ammonium-nitrate is commonly used on the Eastern Shore of Maryland, and often contains added chemicals that may interfere with bacterial nitrogen cycling. Gaps of knowledge exist regarding the fate, transport, and bacterial cycling of urea nitrogen from agro-ecosystems to nearby water systems. This project will focus on the enzyme urease which is responsible for the carrying out the reaction of urea to ammonium and carbon dioxide. Ammonium produced from this reaction can be used for the production of nitrate through nitrification. Urease activity will be examined from agricultural drainage ditch sediments collected from the UMES farm. Detection of urease activity will be carried out using an enzymatic assay. Drainage ditch sediments will be treated with deionized water, ammonium, and nitrate to investigate if urease activity is affected by added inorganic nitrogen. Results from this experiment will be used to design additional experiments to further understand how different environmental conditions and nitrogen enrichment affect urease activity. A better understanding of urea cycling will help contribute to the improvement of best management practices as urea based fertilizers become more prevalent in the future.

P26

**Use of Shellfish Waste to Obtain Chitin for Reversible Carbon Dioxide Uptake.**

**Alexa Brady**<sup>1\*</sup>, Katherine Lipsius<sup>1</sup>, Benjamin Barnes<sup>1</sup>, Preeti Sharma<sup>1</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>

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Chitin is a tough but flexible polysaccharide that is stable in a wide range of environments, and is compatible with a number of minerals to form rigid structures such as shells. On the east coast shells are found everywhere. In 2014, 11,228 metric tons of crab was harvested locally, globally, 6 million tons of shrimp was harvested. All of these shells are just a waste to the restaurant industry. In such a way, shells are an inexpensive untapped source of chitin. Recently it has been shown that chitin and its derivatives can be effective sorbents in reversible and biocompatible carbon capture. Discovering a reversible way to capture carbon dioxide has become a modern desideratum. The complex relationship between the depend-

ence of industrial conveniences and pollution makes it necessary and unavoidable to explore ways of reducing CO<sub>2</sub> output without creating a new waste byproduct. Chitin's effectiveness as a sorbent material is due to the relatively weak bonding of CO<sub>2</sub> to amino functional groups, as comparing to traditional silica-based sorbent, making it reversible and reusable.

This project is devoted to evaluation of local waste sources of shells, determination of relative amount of chitin that can be extracted, it's physical and chemical properties, as well as to what degree chitin from shells need to be purified in order to be an effective sorbent. Samples after decalcification only are compared with samples that also were deproteinated and to samples of absolutely pure chitin. At the current stage of this research, shrimp shells and crab shells have given the highest yield of chitin after chemical modification. The yield, purification methods and chemical characterization will be presented and discussed.

P27

#### The Influence of Temperature on the Antioxidants Capacity of Juiced *Aronia Mitsuurinii*

Taryn Jones, Kierra Smith<sup>1</sup>, Andrew Ristvey, Ph.D.<sup>2</sup>, Victoria Volkis, Ph.D.<sup>1†</sup>

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*Aronia Mitsuurinii*, also known as the black chokeberry, is a fruit-bearing shrub which is native to Maryland. The aronia berry has a dark purple color which can be attributed to the berry's extremely high content of the antioxidants called anthocyanins. Antioxidants are an important nutrient needed for capturing naturally formed free radicals in living organisms, and prevention of oxidation and cancer formation. Aronia's reputation of being a super berry entices small farms to use it as a perspective specialty crop. The berry's high content of polyphenols also makes it a likely ingredient in several new products such as, organic teas and vitamin supplements. All food applications of any fruit require high temperature pasteurization and sometimes also cooking as a major steps during the fruit processing. There are three major effects higher temperatures can have on antioxidants; isomerization, decomposition or the loss of water. Recently we have found that at 120°C more than half of antioxidants are decomposed already after the first 5 minutes of the process. However, at 80 °C more than 85% of antioxidant content is safe even after two hours of heating. Yet typically such temperature is not high enough for effective pasteurization. There is a need to explore more temperatures and conditions between 80 and 120 °C to determine the optimal processing

procedures. Here we present detailed measurements and analysis of anthocyanin, flavonoids, polyphenol content of *Aronia Mitsuurinii* as a function of the variation in temperature and the time exposed to these temperatures in the interval of 85 – 100 °C. The next step will be an antioxidant profiling using LCMS.

P28

#### Isolation and Characterization of Essential Oils in Medicinal Herbs, Plants, And Algae; and Their Applications in Pest Control.

Mark Joseph<sup>1\*</sup>, Carson Cohen<sup>1\*</sup>, Simon Zebelo, Ph.D.<sup>1†</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>

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Holy basil (*Ocimum teniflorum*), Argan (*Argania spinosa*) and various other herbs and plants are known for their cosmetic and medical use. While there are several studies that show the chemical compositions of these oils and their benefits, there are limited studies on the insecticidal effects. As well, many of these plants are originally grown in countries of Africa and Asia and currently are on trial to be cultivated in US. Due to difference in climate and soil, plants grown in US typically would have different oil composition as compared to countries of their origin. For potential applications, the evaluation and comparison for those plants is needed. Here, we hypothesize that the essential oils from Holy basil, argan, *Aronia mitsuurinii*, and other medicinal plants and herbs will have either deterrent, attractive or repellent effects on insects. To test this hypothesis, we first isolate essential oils by wet distillation and/or extraction and characterize their composition using GCMS and LCMS, as well as UV/vis spectroscopy. We then compare results with literature data for similar plants grown in its natural habitats. Then, in order to test the biological effect of the essential oils, a bioassay system is implemented with controlled pest interference and oil concentrations. Our preliminary tests have shown that essential oils from Holy basil leave extracts, that showed mostly monoterpenes and sesquiterpenes on GCMS, demonstrated high deterrence effect against Japanese Beetles with less leaf area damage and high mortality of the beetles observed. This in essence means that Holy basil and Argan oil extracts might have potential for pest control in organic produce production.

P29

#### Using Hydrolysis to Increase Effectiveness of Chitin for Reversible Carbon Dioxide Capture



**Katherine Lipsius\***, Preeti Sharma<sup>1</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>

<sup>1</sup>Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD, 21853

Carbon dioxide (CO<sub>2</sub>) output has become a paramount concern for the scientific community as the level of greenhouse gases continue to rise with our reliance on industrialization. Developing a way to reverse or desorb carbon dioxide is important for the continued health of the environment and the sustainability of our indulgent lifestyle. Chitin is a long chain polymer of high molecular weight recently tested as a sorbent material in reversible carbon dioxide capturing. This polysaccharide and its derivatives are compatible with several other minerals to form rigid structures such as shells. Previous experiments utilized Chitin obtained from the discarded shell waste of seafood industries found locally on the eastern shore for sample study material. It was determined that this Chitin demonstrated relatively weak bonding ability of CO<sub>2</sub> to its amino groups, as compared to traditional silica-based sorbent, making it reversible and reusable. Yet, when tested, the polysaccharide had a low absorbance rate and remained insoluble in other organic solvents. Developing a way to increase the rate of uptake is important to continuing the use of Chitin as a sorbent material. Hydrolysis is a reaction involving the breaking of chemical bonds through the addition of water and thus decreases the molecular weight of the polymer by breaking longer polymeric chains into shorter fragments. Prior experiments have indicated that these fragments are often more soluble and allow more bonding sites for the appropriate molecules by reducing restrictions due to size. This project utilizes hydrolysis as a method for breaking Chitin into lower molecular weight subunits to increase the possible absorbance rate of CO<sub>2</sub> and relative solubility. The preliminary results of acidic hydrolysis of pure chitin and the one recovered from the shells waste will be presented along with fractionation of products of hydrolysis and its chemical characterization.

P30

**Probing Polymeric Blends With Natural Extracts From *Aronia Mitsuurinii* As An Effective And Natural Substitute Of Tributyl Tin (TBT) For Antifouling Protection**

**Darrick Moore, Herman Osorio**, Haileab Ghebrekiden, Baruch Volkis, Paulinus Chigbu, Ph.D.†, Victoria V. Volkis, Ph.D.\*.

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Marine biofilm formation is the accumulation of micro/macro organism and polymerized products of their metabolism on submerged

and/or wet objects. The main environmental trait of this process is spreading bacteria from one underwater habitat to another, and barnacle attachment to bottom of ships. The latter especially affects cargo industry and military. Marine biofilm formation results in significant increase of fuel consumption and damage to ship hulls, petroleum platforms and other under-water objects. To slow the growth of biofilm formation, antifouling paint is applied to the bottom of the hull of a ship or boat. While it can decelerate the growth of the organisms, traditional antifouling composites used contain tributyltin (TBT), which is an unstable and toxic compound. Use of this additive is banned in many countries including US. In this project extracts from *Aronia Mitsuurinii*, a super-berry that contains 15 times more antioxidants than assai berry, as well as holy basil, argan oil and some other extracts from medical herbs, algae and sponges are studied as potential organic substitutes for Tributyltin (TBT). Since 2006, aronia berries and many of herbs in this study are cultivated in about 20 Maryland small farms. Using those crops for non-food related applications relevant to military would help to make small farms more sustainable and increase their revenues. The evaluation of crop has three main steps: (1) extraction and characterization of extract with UV/Vis, LCMS, FTIR and other methods; (2) blending with polymers and sample preparation; (3) antifouling tests and surface analysis and comparison. Preliminary results obtained so far will be presented in this poster.

P31

**Dye-Sensitized and Innovative Perovskite Solar Cell**

**Kanika Neal\***, Kausik S. Das, Ph.D.<sup>1</sup>, Yan Waguespack, Ph.D.<sup>1</sup>

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Renewable energy sources have paved the path to modern technology and future innovations. In previous studies, dye-sensitized solar cells have been made and experimented with TiO<sub>2</sub>, ZnO, as well as anthocyanin to obtain and increase solar to electric conversion efficiency. Some results and observations from these combinations have been obtained. To further research, this study will be experimenting with perovskite solar cells because it has become a target for enhancing efficiency. Perovskite is calcium tinante mineral known to be a flexible and durable material for advancing photovoltaic applications, however, enhancing stability and high performance has become a challenge. The objective of this study is to create a perovskite

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solar cell using a known method, but altering it to increase the efficiency and maintain high performance. Titania precursor solution will be experimented with Ti-Nanoxide T300/SC and Ti-Nanoxide BL/SC, and perovskite and copper (I) thiocyanate (CuSCN) solution is also prepared. The three following solutions will be added to the FTO glass in intervals of one drop, respectively, and topped with another FTO conductive glass. While the population is steadily increasing, more energy is used. Therefore, by altering the known methodology of perovskite, the solar to electric conversion efficiency may increase, become more stable, and may become suitable for advanced future applications.

P32

**Dye Sensitized Solar Cells (DSSC)**

**Joshua Orebiyi**, Kausiksankar S. Das, Ph.D.

Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, MD, 21853

In today's modern society, energy has become an imperative part of daily life. It is incorporated in every aspect of our lives. As the population of the world increases, so does the demand for energy. In the next 30 years' worldwide power consumption is expected to double. Mainstream power sources such as fossil fuels and nuclear power have proven to produce substantial amounts of energy but at a cost. Not only has fossil fuels largely contributed to pollution in our atmosphere but it is also a limited resource. With an increase in demand in energy in the future, the option of renewable energy sources has begun to become more important, and the most feasible choice of them is solar energy. Dye sensitized solar cells are a type of thin film solar cell used to convert sunlight into electrical energy through means different than conventional solar cells. Dye sensitized solar cells are made from materials that are both biocompatible and biodegradable. This study used anthocyanin which are dyes found in common berries like blueberries, blackberries, and strawberries and harness their light absorption capabilities to create solar cells. The purpose of these solar cells is to eliminate the use of conventional silicone solar cells by creating solar cells that are environmentally friendly and that can produce a higher efficiency rate of converting sunlight into electrical energy. In this work, a large number of variations on DSSC fabrication parameters were explored. The main goal was to produce cells and compare photoelectric conversion efficiency (PCE) and try to maximize the percentage of solar energy that is converted into electrical energy. The results show that impact of plasma etching was shown positive in the case of pure ZnO with an efficiency of .02%, but detrimental in the case of composited ZnO and TiO2 semiconductor. The impact of semiconductor thickness was also explored by scaffolding experiments. It was shown that efficiency was optimized at four scaffolds; with 2 scaffold yield-

ing .02%, 3 scaffold yielding .017%, 4 scaffold yielding .05%. Further results from scaffolding show a decreased dramatically at eight

scaffolds yielding  $7.45 \times 10^{-4}\%$ . It was shown that TiO2 composited with ZnO of different morphologies resulted in mixed efficiency, with ZnO nanowires outperforming ZnO nanoparticles. Finally, it was shown that blueberry dyes (.461%) resulted in a much higher PCE than did blackberry-based dye (.22%). The experiment has shown great results but further research will be done to continue the improvement of the PCE of the DSSC and explore other combinations of anthocyanin and semiconductor materials that might prove to increase our already promising results. The research is funded by the Louis Stokes Alliance for Minority Participation (LAMSP).

P33

**Benchtop Photolithography and High Resolution Photomask Design**

**Habilou Ouro-Koura\***, Kausiksankar S. Das, Ph.D.

Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, MD, 21853

Lab on a chip is a developing field in nanoscience which requires controlled topographic modification of substrate surfaces. Photolithography is a printing technique used in changing surface morphology and topography, manufacturing of integrated circuits, and microfluidic channels at small scale. Photolithography is usually a sophisticated technique which needs clean-room facility and high resolution photomask designing. This presentation will report a simple technique by which high resolution photo-mask were designed using heat treated polystyrene plastic (Shrinky Dink) to achieved fabrication of microscale lithographic patterns on a silicon wafer. Different techniques of photolithography were tested and optimized for the best results. Microfluidic channels using this technique were also created with PDMS mould. The fabricated lithographic patterns will be characterized by an Atomic Force Microscope (AFM).

P34

**Urease Containing Bacteria in Agricultural Drainage Ditch Sediment Bordering a Fertilized and Non-Fertilized Crop Field**

**Datonya Price, Sabrina Klick**, Joe S. Pitula, Ph.D., Eric B. May, Ph.D.

Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD, 21853

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Agricultural drainage ditches are targets for best management practices to reduce downstream nutrient pollution because they link crop fields to adjacent waterways. Application of urea-ammonium-nitrate (UAN) fertilizers often contain urease inhibitors, and may influence nitrogen cycling by bacterial communities within agricultural drainage ditches. The urease enzyme is responsible for converting urea into ammonium, an important substrate for nitrification. It is unclear how application of urease inhibitors on the crop fields affects urease containing bacteria within the agricultural drainage ditches. Therefore, water and sediment samples were collected on June 6th and July 11th in 2017 from two ditches bordering a fertilized and non-fertilized crop field, located on a private farm in Somerset County, MD, USA. Environmental parameters from the surface water of the ditches were measured with an EXO multi-parameter sonde. Water samples were analyzed for concentrations of urea-N, ammonium-N, and nitrate-N. Sediment samples were used to extract environmental DNA, and then used to target the urease gene. A clone library was constructed from each sample to compare the dominant urease containing bacteria.

P35

**Extraction of Antioxidants from *Aronia mitschurinii* Juice Using Macroporous Resins**

Jasmine Turner<sup>1</sup>, Gabrielle Mister<sup>1</sup>, Breann Hrechka<sup>1</sup>, Andrew G. Ristvey, Ph.D.<sup>2</sup>, Victoria V. Volkis, Ph.D.<sup>1†</sup>

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Antioxidants play a vital role in the human body by defending cells from damage caused by free radicals, highly reactive products of oxidation reaction; a major source of antioxidants are fruits, berries and vegetables. One berry in particular, Aronia, has shown a significant content of hydrophilic antioxidants in current research. The Aronia berry, also known as the black chokeberry, is a North American shrub containing a potent blend of antioxidants including anthocyanins, polyphenols, and flavonoids. Previous research has shown that macroporous resins (ex. XAD761, FPX66, and XAD1180) are effective in extracting the optimum concentration of anthocyanins and polyphenols from aronia. Preliminary results showed that FPX66 was the most effective sorbent for anthocyanins and flavonoids. The resin also had the highest total recovery for both anti-

oxidants. In respect to desorption, FPX66 was the second best at releasing the antioxidants and is preceded by XAD1180. This presentation will be reporting determination of the limit of detection by diluting method using antioxidant standards, evaluation of total polyphenols before and after the extraction, as well as method optimization.

**CREATIVE ENDEAVORS**

CE1

**Product Customization Design Presentations**

Human Ecology Department, University of Maryland Eastern Shore, Princess Anne, MD 21853

Adviser: Dr. Bridgett Clinton-Scott  
Undergraduate Students

Morgan Barnes	Kayla Mosegi
Shakinah Braxton	Gabriel Moody
Briana Brooks	Donovan Mundy
Tanise Edwards	Brenda Oppong-Boateng
Quintaya Forchion	Devin Outten
Ashlee Jackson	Joshua Pollard
Armani Lewis	Brittany Washington

Digital textile printing is an evolving technology in the apparel and textiles industry that has combined advances in fabric with dye chemistry to produce complex images on fabric. These digitally engineered fabrics are comprised of millions of colors and can be quickly printed using a sublimation printer and heat press. Using digital textile print technology 14 fashion merchandising students in the Human Ecology Department at the University of Maryland Eastern Shore (UMES) created customized fabrics. Inspiration for the textile designs came from artwork created by art students in the Department of Fine Arts at UMES. The fashion merchandising students used their fabric to create a variety of garments including dresses, skirts, leggings, and tops. This product customization design project enables fashion merchandising students to benefit from the latest technology in textile design and it helps them put theory into practice. This creative design project has also equipped students with cutting-edge technical skills





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necessary to meet the demands of the every changing and evolving industry of apparel and textiles.

CE2

#### **The Influence of Mobile Retail Application Functions on Consumer Online Interactions**

Shakinah Braxton

Adviser: Dr. Bridgett Clinton-Scott  
Human Ecology Department, University of Maryland Eastern Shore, Princess Anne, MD 21853

This research analyzes the influences of mobile retailing that has an impact on consumer purchase power by examining the different dynamics that encourages retailers to develop mobile functions based on consumers' behaviors. This will enable retailers to gain more customer interaction within these apps. The importance of this research is to identify factors or functions that cause customers to interact with these mobile retail applications in a way that benefit retailers. Studies have shown that most consumers use retailing apps as a way to better their shopping experience, obtain information, or gain benefit. This study utilized a structured observational approach to collect data through an array of comparison charts and graphs showing percentages in the changes of mobile retail app profits between different retailers, different interactions between mobile retailing, mobile websites and online shopping, and mobile retailing aesthetics. Conducting this research will help retailers choose better mobile retailing functions that will attract consumer's attention and persuade them into becoming more active within the application. Methods identified in this study, were also tested amongst popular retailers in order to prove that retailer interaction within mobile applications are just as important as consumer interaction within mobile applications. The more advertisements, special promotions, sales, coupons, and other special features are concluded to be the best way to gain consumer interactions. Retailers that use the mobile retailing method to induce consumer profit will have to be dedicated in testing and adding new functions to their retailing apps in order to maintain consumer loyalty.

CE3

#### **Retailers' Social Media Usage and Consumer Interaction**

Shavonne Hair

Adviser: Dr. Bridgett Clinton-Scott  
Human Ecology Department, University of Maryland Eastern Shore, Princess Anne, MD 21853

This research examines and compares social media usage of specialty retail stores and shoe stores. The major purpose of this research paper was to explore social media usage factors such as promotional activities, reviews, postings, videos, product updates, and overall consumer interaction. This research paper analyzes the behavior of retailer's social media post to assess social media usage effectiveness. This study's findings indicate retailers must engage in active and on-going social media interaction to keep consumers engaged and interested in their products and services. This research will help retail professionals better understand the influence of social media usage for their businesses.

CE4

#### **Retail Mobile Apps: An Emerging Retail Trend**

Alexia Moye

Adviser: Dr. Bridgett Clinton-Scott  
Human Ecology Department, University of Maryland Eastern Shore, Princess Anne, MD 21853

This paper explores retailers' mobile application functions and level of consumer interaction on mobile applications. The main purpose of this research paper was to discover factors that would help retailers use their mobile more effectively to engage with consumers. An observational study was performed to examine the mobile application usage of six fashion retailers to determine its impact on retailer-consumer interaction via mobile applications. This research topic will assist retail professionals in understanding the influence of mobile retailing on their business.

CE5

#### **Impact of Social Media on Fashion Retailers: Online and Department Stores**

Brenda Oppong-Boateng

Adviser: Dr. Bridgett Clinton-Scott  
Human Ecology Department, University of Maryland Eastern Shore, Princess Anne, MD 21853

This research explores the impact of social media on online-only fashion retailers and department stores. Social

media has become a huge platform for companies to interact with their consumers, as well as market their products. The major purpose of this research paper is to explore the factors that maybe impacting or hindering consumer interactions with in online and department stores on social media platforms. An observational study was performed to examine a select group of online and department stores to determine if fashion retailer's particularly online stores are more likely to have greater consumer interactions than department stores because online stores are able to engage in more online consumer interactions than department stores. This research topic will help retail professionals better understand the influence of social media platforms and consumer interactions.

CE6

**The Influence of Social Media on Consumer Decision Making**

Daysia Taylor

Adviser: Dr. Bridgett Clinton-Scott

Human Ecology Department, University of Maryland Eastern Shore, Princess Anne, MD 21853

Social media interaction has grown tremendously in recent years and it has become a platform for many businesses to share their products and services, while building one's clientele with the method of customer-to-noncustomer interaction. This paper explores the relationship between social media interaction and the retailing industry by analyzing consumer behavior in terms of their decision-making. The major purpose of this research paper is to explore the difference between boutiques and retail stores in terms of their social media interaction with consumers. This study used an observational approach to examine how social media affects how consumers view different fashion brand and interact with them through social media. With the research presented, professionals will be able to better understand the influence social media has on consumers and how they perceive their business.

**Monetary Presentations**

MP1

**Streaming Music: Is YouTube Still Valuable Enough For Musicians to Increase Viewership**

Marcus Baldwin\*

Department of Business, Management, and Accounting,  
University of Maryland Eastern Shore, Princess, MD  
21853

For years, YouTube has been the go to place for music & entertainment online. Millennials agree that YouTube is the one stop shop for video consumption of all kinds. This study will research what needs users are satisfying when using streaming sites; especially with respect to music. The purpose of this research is to discover what features are popular for attracting users and more importantly, how an independent musician can promote viewership. With reality and stress being major factors in our everyday lives, people use coping mechanisms to get through the day and YouTube may be one of them. Research shows that listening to music also relieves stress. Streaming options will be identified while comparing the benefits and challenges to, and motives of avid users. There are many advanced users who are able to monetize income from YouTube. The research will focus on the usage behavior of streaming music concentrating on 15-25 year olds. YouTube will be analyzed in order to diagnose viewership questions with an expert opinion and outlook. This research will be based on qualitative and quantitative methods using SurveyMonkey to get a feel of how much the average user looks to YouTube to find new music. There will be a discussion of findings and results. This study was conducted as a part of the course requirement for Marketing Research and guided by Dr. Monisha Das.

MP2

**UMES Federal Reserve Challenge Team  
Presentation on Federal Open Market Committee  
Deliberations**

Monisha Das\*, Mohammad Ali, Vichet Sum, Rexford Abaidoo, Issac Marcelin, Leesa Thomas-Banks Grayson K. Trower, Briyanah M. Harris, Kayode B. Akinbode, Alese D. Brown, Awad M. Hassan and

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Eniiyinola M. Okulate

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The UMES Federal Reserve Challenge Team will present extensive data analysis about the U.S. macro economy, the Federal Reserve System and the implementation of monetary policy. The team will debate upside and downside spillovers of the current monetary policy, its stance, impact of fiscal policy, the status of aggregate demand, and labor market conditions. Our 2017 team is made up of undergraduate Business and Computer Science Majors who analyze economic and financial data and formulate monetary policy recommendations modeling the Federal Open Market Committee. Our team role plays decision makers who are FOMC Governors and Presidents: Janet Yellen, Stanley Fischer, James Bullard, Esther George, Daniel Tarullo and William Dudley.

MP3

#### **The First Amendment and Social Media Companies. Should social media companies be regulated?**

**Monisha Das\***, Trogon Ryland, Makeala L. Brawner and  
Edward C. Mason

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University of Maryland, Eastern Shore, Princess Anne, MD  
21853

Social media companies such as Google, Facebook and Twitter have become major channels for news, advertising, commercial and personal speech. We use a debate format to explore what the First Amendment protects and whether all speech online is protected. If there are deviations such as fake news, misleading advertising and other types of speech that are not protected by the First Amendment but seem to appear regularly on social media, should these companies be regulated as regular media companies are? Where do we draw the line? Using secondary data, we research the question of regulation or self-regulation. -The findings will be presented in debate format.

MP4

#### **YouTube Feminine Space: The Influence of African- American Makeup YouTubers**

**Ashanti A. Price\***

Department of Business Management and Accounting,  
University of Maryland Eastern Shore, Princess Anne, MD  
21853

African-American women with the age group of 15-25 turn to online media to look for solutions to cosmetic problems by using makeup and skincare advice and products. Not much information exists regarding online minority subscriber behavior. This research study explores questions regarding cosmetic needs of our sample and how these needs are satisfied. Research questions that will be looked into include: why YouTube is preferred over other media, what makeup problems YouTube solves, which YouTube content creators appeal to this demographic, and what is the profile of the heavy users of these online media channels. Recommendations will be made to improve the way cosmetic companies and skincare providers can appeal to these subscribers. Can these online media stars potentially increase the reach of these companies through YouTube? Can these cosmetic entrepreneurs monetize income from YouTube? We examine secondary data and published reports on subscriber behavior. Our primary research will be based on qualitative and quantitative methods using focus groups and survey methods. Findings and results using regression analysis will be discussed. This study was conducted as a part of the course requirement for Marketing Research and guided by Dr. Monisha Das.

**GRADUATE COUNCIL MEMBERS  
2015-2017**

The following individuals have been elected to serve on the 2015-2017 Graduate Council:

**School of Agricultural and Natural Sciences**

Dr. Salina Parveen  
Dr. Joseph Pitula  
Dr. Jurgen Schwarz  
Dr. Eric May  
Dr. Paulinus Chigbu- Dean Appointee

**School of Business and Technology**

Dr. Edward Chapin  
Dr. I.K. Dabipi  
Dr. Monisha Das  
Dr. Daniel Seaton

**School of Education, Social Science, and the Arts**

Dr. Prince Attoh  
Dr. Cheryl Bowers  
Dr. Kimberly Poole-Sykes  
Dr. Lily Chi-Fang  
Dr. Derry Stufft- Dean Appointee

**School of Pharmacy and Health Professions**

Dr. Patrice Jackson-Ayotunde  
Dr. Adel Karara  
Dr. Madan Kharel  
Dr. Miguel Martin-Caraballo  
Dr. Maryam Rahimi

**Ex-Officio Members**

Dr. Juliette Bell, President  
Dr. Kimberly Whitehead, Interim Provost and Vice President for Academic Affairs  
Dr. LaKeisha Harris, Interim Dean of the Graduate School; Chair of the Graduate Council

“The Graduate Council consists of members of the Graduate Faculty elected by the Assembly, as well as appointed and ex-officio members. It is charged with formulation of policies and procedures for the graduate programs at UMES. These include, but are not limited to, admission standards, review of new graduate programs and courses, and review of the UMES Graduate Faculty membership.” Graduate Catalog  
[www.umes.edu/grad](http://www.umes.edu/grad)

Graduate Student Representative to be appointed by the School of Graduate Studies Dean

## **2015-2017 Graduate Council Committees**

Dr. Lakesha Harris, Chair

### **Academic Standards/Curriculum Committee**

Dr. Edward Chapin, Chair  
Dr. Cheryl Bowers  
Dr. Prince Attoh

### **Curriculum Committee**

Dr. Paulinus Chigbu, Chair  
Dr. Miguel Martin,  
Dr. Ibibia Dabipi

### **Graduate Faculty Committee**

Dr. Derry Stufft, Chair  
Dr. Adel Karara  
Dr. Joseph Pitula

### **Graduate Council Research Committee**

Dr. Eric May, Chair  
Dr. Patrice Jackson-Ayotunde, Co-Chair  
Dr. Lily Tsai  
Dr. Monisha Das  
Dr. Kimberly Poole-Sykes  
Dr. Madan Kharel

### **Committee on Student Life**

Dr. Maryam Rahimi, Chair  
Dr. Salina Parveen  
Dr. Daniel Seaton  
Mr. Zoe Johnson, Graduate Student Representative



University of Maryland Eastern Shore 2018 Graduate Education Week

**GRADUATE PROGRAM  
DIRECTORS**

Applied Computer Science, M.S



Dr. Albert Casavant

Career & Technology Education, M.Ed.



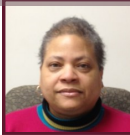
Dr. Thomas Loveland

Chemistry, M.S.



Dr. Deborah G. Sauder

Counselor Education, M.Ed.



Dr. Cheryl Bowers

Criminology and Criminal Justice, M.S.



Dr. Lorenzo Boyd

Education Leadership, Ed.D.



Dr. Derry Stufft

Food & Agricultural Sciences. M.S.



Dr. Jurgen Schwarz

Food Science and Technology, Ph.D.

Photo Not  
Available

Dr. Caleb Nindo

Master of Arts In Teaching, M.A.T



Dr. Charles Baldwin

Marine Estuarine Environmental  
Sciences, Ph.D. and M.S.



Dr. Joseph Pitula

Organizational Leadership, Ph.D.



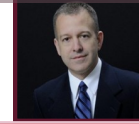
Dr. Prince Attoh

Pharmaceutical Sciences, Ph.D & M..S.

Photo Not  
Available

Dr. Mark Simmons

Physical Therapy, D.P.T.



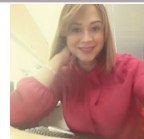
Dr. Michael Rabel

Professional Science Master's in  
Quantitative Fisheries, P.S.M.



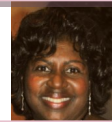
Dr. Paulinus Chigbu

Rehabilitation Counseling, M.S.



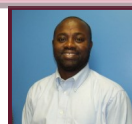
Dr. Leslie Santos

Special Education, M.Ed.



Dr. Patricia Goslee

Toxicology, Ph.D. and M.S.



Dr. Ali Ishaque



## Graduate Education Week Committees

### Convener

Dr. LaKeisha Harris

Interim Dean, School of Graduate Studies

### Program

Ms. Amelia Potter, Chair, Graduate School Research Symposium Committee 2017  
Department of Natural Sciences, UMES

Ms. Wele Elangwe, School of Graduate Studies, UMES

Dr. Prince Attoh, Associate Professor, Organizational Leadership

Dr. Patrice Ayotunde-Jackson, Associate Professor, Department of Pharmaceutical Sciences

Dr. Charles Baldwin, Associate Professor, Department of Education

Dr. Tracy Bell, Assistant Professor, Department of Natural Sciences

Dr. Tyrone Chase, Assistant Professor, Organizational Leadership

Dr. Bridgett Clinton, Assistant Professor, Department of Human Ecology

Dr. Maurice Crawford, Associate Professor, Department of Natural Sciences

Dr. Monisha Das, Associate Professor, Department of Business Management and Accounting

Dr. Kingsley Ejiogu, Assistant Professor, Department of Criminal Justice

Dr. Dennis Klima, Associate Professor, Department of Physical Therapy

Ms. Jamila Johnson, Coordinator, PGA Golf Management

Dr. Thomas Loveland, Associate Professor, Department of Technology

Dr. Caleb Nindo, Associate Professor, Department of Agriculture Food and Resource Sciences

Dr. Leslie Santos, Assistant Professor, Department of Rehabilitation Services

Dr. Terry Smith, Associate Professor, Department of English and Modern Languages

Dr. Victoria Volkis, Associate Professor, Department of Natural Science

### Registration

#### *UMES School of Graduate Studies Staff*

Ms. Wele Elangwe, Student Services Director / Equity and Compliance Officer

Mr. Preston Gross, Admissions Coordinator

Ms. Angela Young, Administrative Assistance

#### *UMES School of Graduate Studies Student Interns*

Ms. Princess Botu

Ms. Caitlyn Cherry

Mr. Darius Cornish

Mr. Zoe Johnson

Mr. Jesu Raj Pandya

**Faculty Awards**

Dr. Paulinus Chigbu, Chair, Graduate School Faculty Excellence Awards Committee  
Department of Natural Sciences, UMES  
Dr. Victor Hsia, Department of Pharmacy, UMES  
Dr. Maryam Rahimi, Department of Rehabilitation Services, UMES  
Dr. Derry Stufft, Department of Education, UMES  
Dr. Salina Parveen, Department of Agricultural, Food and Resource Sciences, UMES  
Dr. Joseph Arumula, Department of Technology, UMES  
Dr. Emmanuel Onyeozili, Department of Criminal Justice, UMES

**Information Technology**

Mr. Jeremy Townsend, Information Technology, UMES  
Mr. Joe Smith, Information Technology, UMES  
Mr. Eric Williams, Information Technology, UMES  
Mr. Darius Cornish (Graduate School Webpage and Symposium Webpage)  
Mr. Jesu Raj Pandya (Graduate School Webpage and Symposium Webpage)

**Logistics and Support Services**

Mr. Eric May, Department of Natural Sciences, Logistics  
Ms. Amelia Potter, Department of Natural Sciences, Events Sessions Organizer/Program  
UMES Honors Program, Dr. Michael Lane, Director  
Louis Stokes Alliances for Minority Participation (LSAMP), Dr. Tracy Bell, Coordinator  
Minority in Agriculture, Natural Resource and Related Sciences (MANNRS)  
Graduate Students Association  
Ms. Jhamyllia Rice, Department of Natural Sciences, UMES  
Ms. Cyanna Scott, Department of Natural Sciences, UMES  
Ms. Olivia Skeen, Department of Natural Sciences, UMES

**Program and Book of Abstracts**

Dr. Thomas Loveland, Reviewer, School of Business and Technology, UMES  
Dr. Terry Smith, Editor, Department of English and Modern Languages, UMES  
Ms. Amelia Potter, Producer, Department of Natural Sciences, UMES  
Ms. Wele Elangwe, Reviewer, School of Graduate Studies, UMES

**Judges**

Dr. Pince Attoh, Committee Chair, Department of Social Sciences, UMES  
Dr. Tyrone Chase, Committee Co-Chair, Department of Social Sciences, UMES  
Indicated overleaf by sessions

## University of Maryland Eastern Shore 2018 Graduate Education Week

### **Moderators**

Dr. Victoria Volkis, Committee Chair, Department of Natural Sciences, UMES

Dr. Dennis Klima, Committee Co-Chair, Department of Physical Therapy, UMES

Indicated overleaf by sessions

### **Volunteers**

Mr. Zoe Johnson, Volunteers Coordinator , School of Graduate Studies, UMES

UMES Graduate Students:

Ms. Stephanie Hallowell, Department of Rehabilitation Services, UMES

Ms. Jhamyllia Rice, Department of Natural Sciences, UMES

UMD Undergraduate Students:

Lydia Mazze

Tobenna Blossom Mbonu

Francis Oyebanjo

Michael Ray

Aliyah Silver

Sarah Sudlow

Yoseph Tewodros

Amarachi Ude

UMD Graduate Students:

Kiante Brantley

Andrew Norman Shaw

UMBC Graduate Students:

Hector Medina

Shawnisha Hester

Denise Williams

Ashley Wayne

Canessa Swanson

Valencia Watson

UMES Undergraduate Students:

Ms. Casmira Nelson



## University of Maryland Eastern Shore 2018 Graduate Education Week

### Judges' Schedule – Alphabetical Listing

CHAIR OF THE JUDGES' COMMITTEE: Dr. Prince Attoh, [pattoh@umes.edu](mailto:pattoh@umes.edu)

	JUDGE	SESSION	TIME	LOCATION
1	Ali, Mohammad	POSTER 1-5	9:00 a.m.-10:30 a.m.	SSC Ballroom
2	Chigbu, Paulinus	POSTER 1-5	9:00 a.m.-10:30 a.m.	SSC Ballroom
3	Tracy, Bell	POSTER 1-5	9:00 a.m.-10:30 a.m.	SSC Ballroom
4	Ayotunde, Patrice	POSTER 6-10	9:00 a.m.-10:30 a.m.	SSC Ballroom
5	Attoh, Prince	POSTER 6-10	9:00 a.m.-10:30 a.m.	SSC Ballroom
6	Johnson, Renise	POSTER 6-10	9:00 a.m.-10:30 a.m.	SSC Ballroom
7	Chase, Tyrone Dr	POSTER 11-15	9:00 a.m.-10:30 a.m.	SSC Ballroom
8	Ishaque, Ali	POSTER 11-15	9:00 a.m.-10:30 a.m.	SSC Ballroom
9	Lane, Michael	POSTER 11-15	9:00 a.m.-10:30 a.m.	SSC Ballroom
10	Cravens, Cynthia	POSTER 15-20	9:00 a.m.-10:30 a.m.	SSC Ballroom
11	Cooledge, Dean	POSTER 15-20	9:00 a.m.-10:30 a.m.	SSC Ballroom
12	Das, Kausik	POSTER 15-20	9:00 a.m.-10:30 a.m.	SSC Ballroom
13	Sexton, Maggie	POSTER 21-25	9:00 a.m.-10:30 a.m.	SSC Ballroom
14	Ejiogu, Kingsley	POSTER 21-25	9:00 a.m.-10:30 a.m.	SSC Ballroom
15	Ezeabikwa, Bernadette	POSTER 21-25	9:00 a.m.-10:30 a.m.	SSC Ballroom
16	Gong, Tao	POSTER 25-30	9:00 a.m.-10:30 a.m.	SSC Ballroom
17	Wade, Latasha	POSTER 25-30	9:00 a.m.-10:30 a.m.	SSC Ballroom
18	Henry, Xavier	POSTER 25-30	9:00 a.m.-10:30 a.m.	SSC Ballroom
19	Kharel, Madan	POSTER 30-35	9:00 a.m.-10:30 a.m.	SSC Ballroom
20	May, Eric B.	POSTER 30-35	9:00 a.m.-10:30 a.m.	SSC Ballroom
21	Willie, Brown	POSTER 30-35	9:00 a.m.-10:30 a.m.	SSC Ballroom
22	Mohamed, Ali	SESSION 1 - A	1:25 p.m.- 2:40 p.m.	SSC Theater
23	Mohamed, Azah	SESSION 1 - A	1:25 p.m.- 2:40 p.m.	SSC Theater
24	Nindo, Caleb	SESSION 1 - A	1:25 p.m.- 2:40 p.m.	SSC Theater
25	Okulate Mobolaji	SESSION 1 - B	1:25 p.m.- 2:40 p.m.	SSC Room 2149
26	Edje, Blessing	SESSION 1 - B	1:25 p.m.- 2:40 p.m.	SSC Room 2149
27	Min, Byungrok	SESSION 1 - B	1:25 p.m.- 2:40 p.m.	SSC Room 2149
28	Poole-Sykes, Kimberly	SESSION 1 - C	1:25 p.m.- 2:40 p.m.	SSC Room 2147
29	Sauder, Deborah	SESSION 1 - C	1:25 p.m.- 2:40 p.m.	SSC Room 2147
30	Pitula, Joseph	SESSION 1 - C	1:25 p.m.- 2:40 p.m.	SSC Room 2147
31	Tsai, Lily	SESSION 1 - D	1:25 p.m.- 2:40 p.m.	SSC Room 2146
32	Geleta, Nomsa	SESSION 1 - D	1:25 p.m.- 2:40 p.m.	SSC Room 2146
33	Bowers, Cheryl	SESSION 1 - D	1:25 p.m.- 2:40 p.m.	SSC Room 2146
34	Taabodi, Maryam	SESSION 1 - E	1:25 p.m.- 2:40 p.m.	SSC Room 2144
35	Tejada, Fred	SESSION 1 - E	1:25 p.m.- 2:40 p.m.	SSC Room 2144
36	Medina, Hector	SESSION 1 - E	1:25 p.m.- 2:40 p.m.	SSC Room 2144
37	Shaw, Andrew	Creative Session	1:25 p.m.- 2:40 p.m.	SSC Multipurpose Room
38	Brantley, Kiante	Creative Session	1:25 p.m.- 2:40 p.m.	SSC Multipurpose Room





## University of Maryland Eastern Shore 2018 Graduate Education Week

### Graduate Research Symposium

Tuesday, April 19, 2017

### Moderators' Schedule

**CHAIR OF THE MODERATORS' COMMITTEE: Dr. Victoria Volkis; [vvolkis@umes.edu](mailto:vvolkis@umes.edu)**

Moderator	SESSION	TIME	LOCATION
1	POSTER Session	9:00 a.m.-10:30 a.m.	SSC Ballroom
2	POSTER Session	9:00 a.m.-10:30 a.m.	SSC Ballroom
3	POSTER Session	9:00 a.m.-10:30 a.m.	SSC Ballroom
4	ORAL Session 1—A	1:25 PM — 2:40 PM	SSC Theater
5	ORAL Session 1 - A	1:25 PM — 2:40 PM	SSC Theater
	ORAL Session 1 - B	1:25 PM — 2:40 PM	SSC Room 2149
6	ORAL Session 1 - B	1:25 PM — 2:40 PM	SSC Room 2149
7	ORAL Session 1 - C	1:25 PM — 2:40 PM	SSC Room 2147
8	ORAL Session 1 - C	1:25 PM — 2:40 PM	SSC Room 2147
9	ORAL Session 1 - D	1:25 PM — 2:40 PM.	SSC Room 2146
10	ORAL Session 1 - D	1:25 PM — 2:40 PM	SSC Room 2146
11	ORAL Session 1 - E	1:25 PM — 2:40 PM.	SSC Room 2144
12	ORAL Session 1 - E	1:25 PM — 2:40 PM.	SSC Room 2144
13	ORAL Session 1 - F	1:25 PM — 2:40 PM	SSC Ballroom
14	ORAL Session 1 - F	1:25 PM — 2:40 PM	SSC Ballroom
15	Alternate	1:25 PM — 2:40 PM	SSC Multipurpose Room
16	Alternate	1:25 PM — 2:40 PM	SSC Multipurpose Room

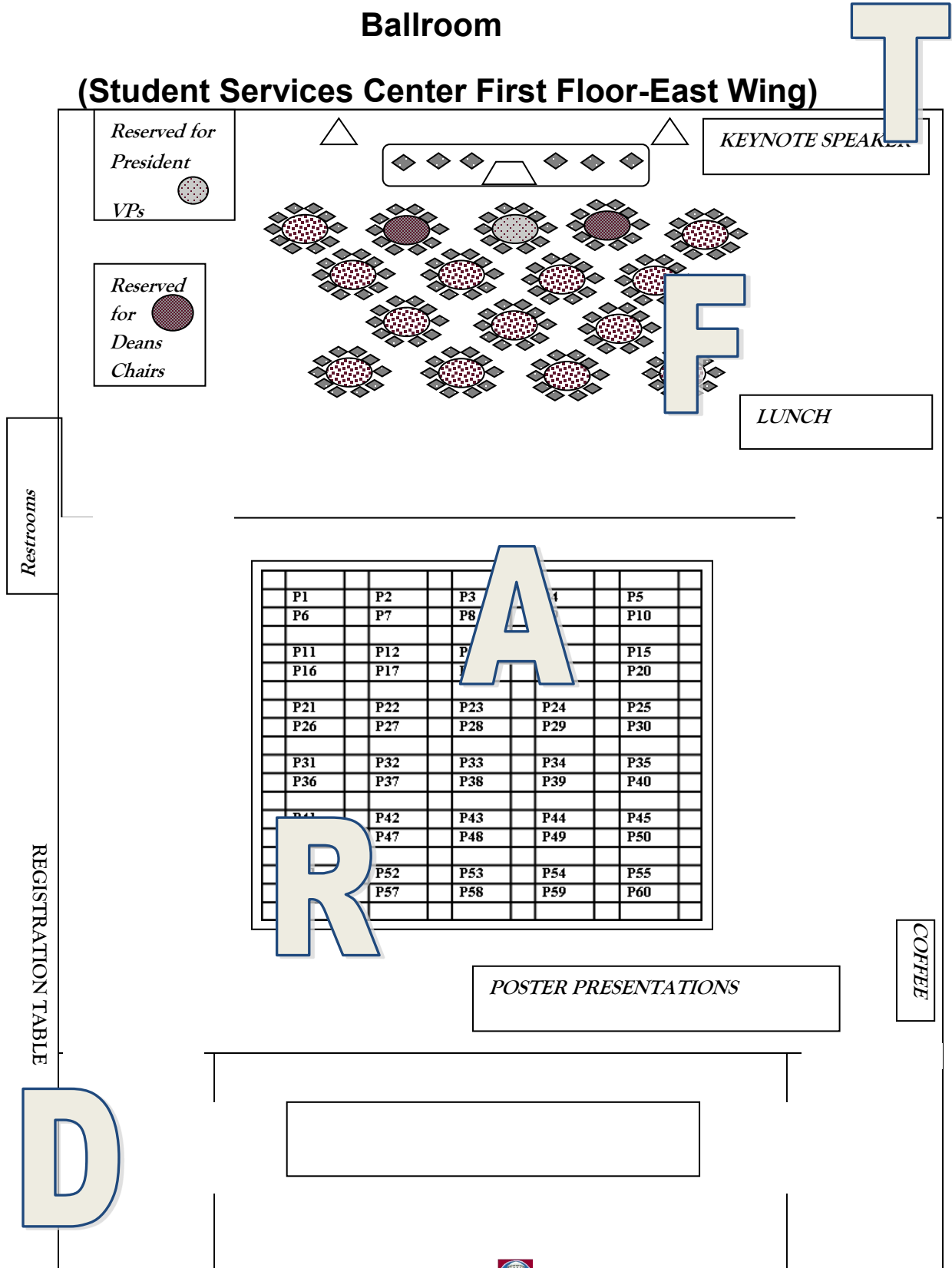


University of Maryland Eastern Shore 2018 Graduate Education Week



## Ballroom

### (Student Services Center First Floor-East Wing)

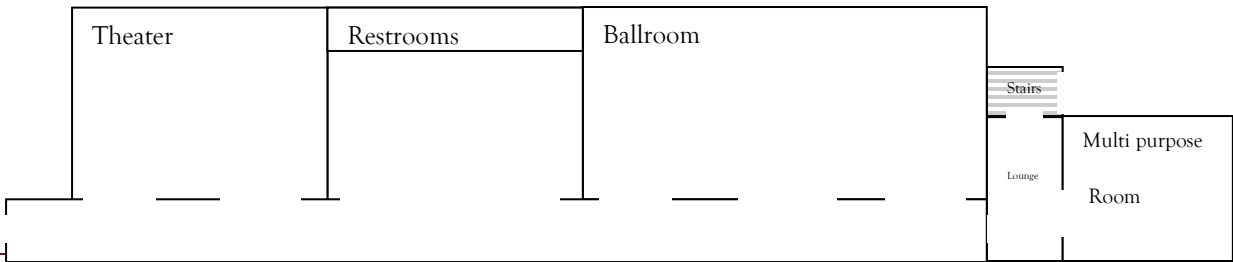


### Student Services Center First Floor Plan

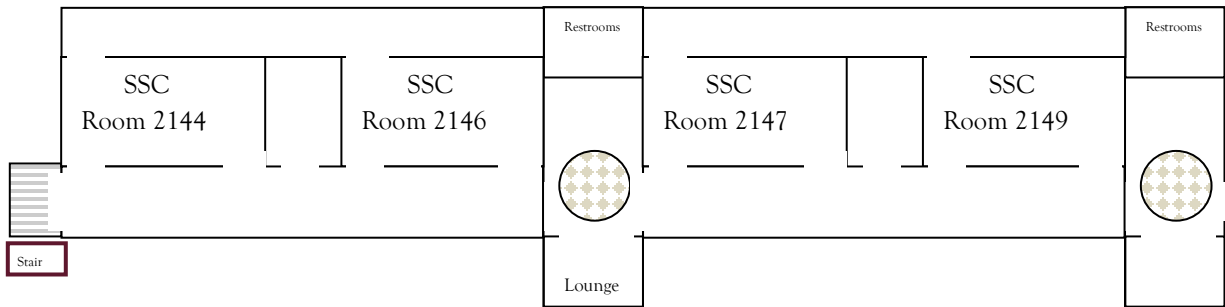
NASA LAUNCH (SSC THEATER) 9:30 AM to 10:30 AM

Oral Presentation Group A (SSC THEATER) Session I 1:25 PM - 2:40 PM

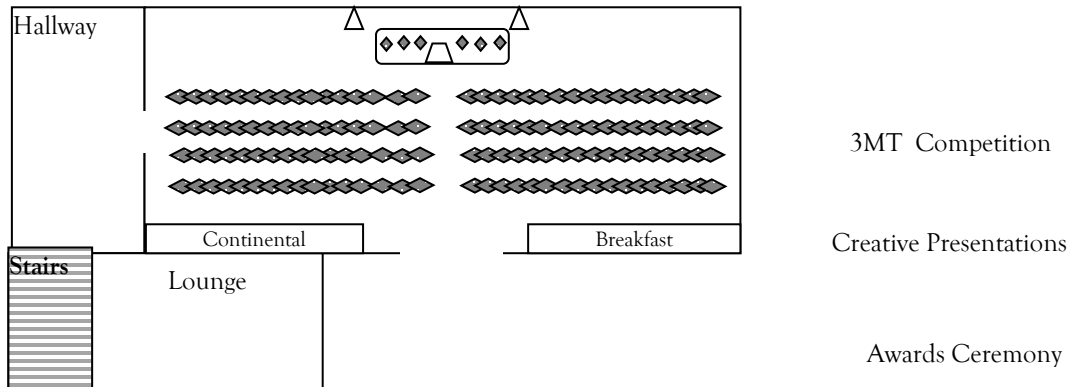
Oral Presentation Group E (SSC Ballroom) Session I 1:25 PM - 2:40 PM



### Student Services Center Second Floor Plan



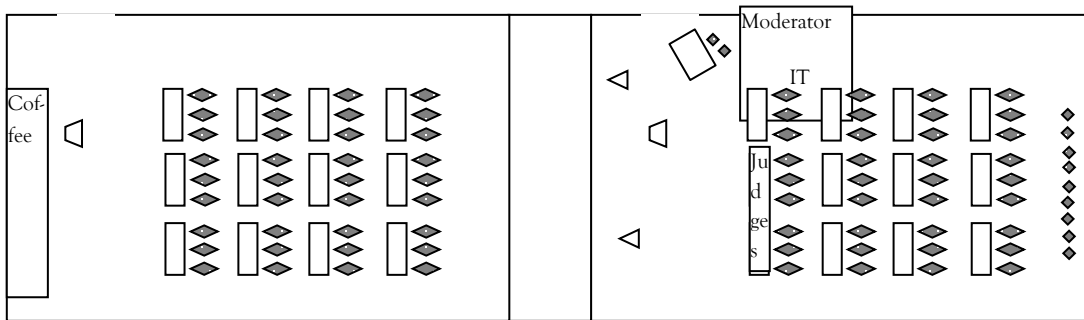
### Multipurpose Room (Student Services Center Room 1140)



Oral Presentation Groups B and C

(Student Services Center Room 2149 and 2147)

Session I 1:25 PM – 2:40 PM



Stairs

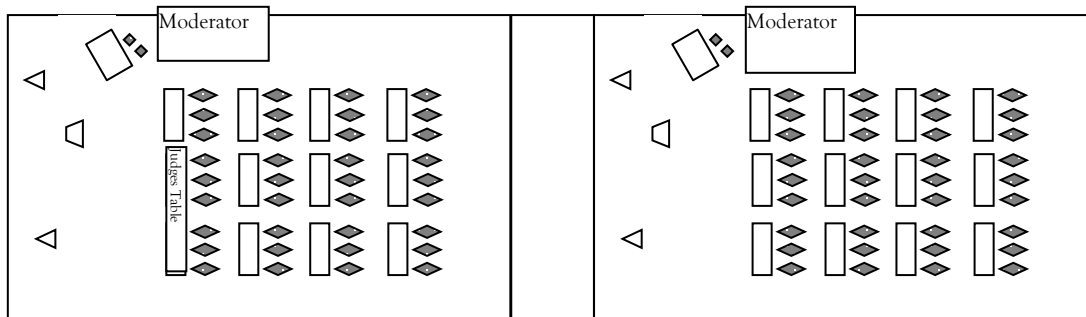
Group C (SSC Room 2147)

Group B (SSC Room 2149)

Oral Presentation Groups D and E

(Student Services Center Rooms 2146 & 2144)

Session I 1:25 PM – 2:40 PM



Group E (SSC Room 2144)

Group D (SSC Room 2146)



## UMES CAMPUS MAP

### Buildings on Map...

**NOTE:** Parking Lot Designations are indicated by Letters

## UMES INFORMATION:

### CAMPUS ADDRESS:

**UMES**

**University Drive**

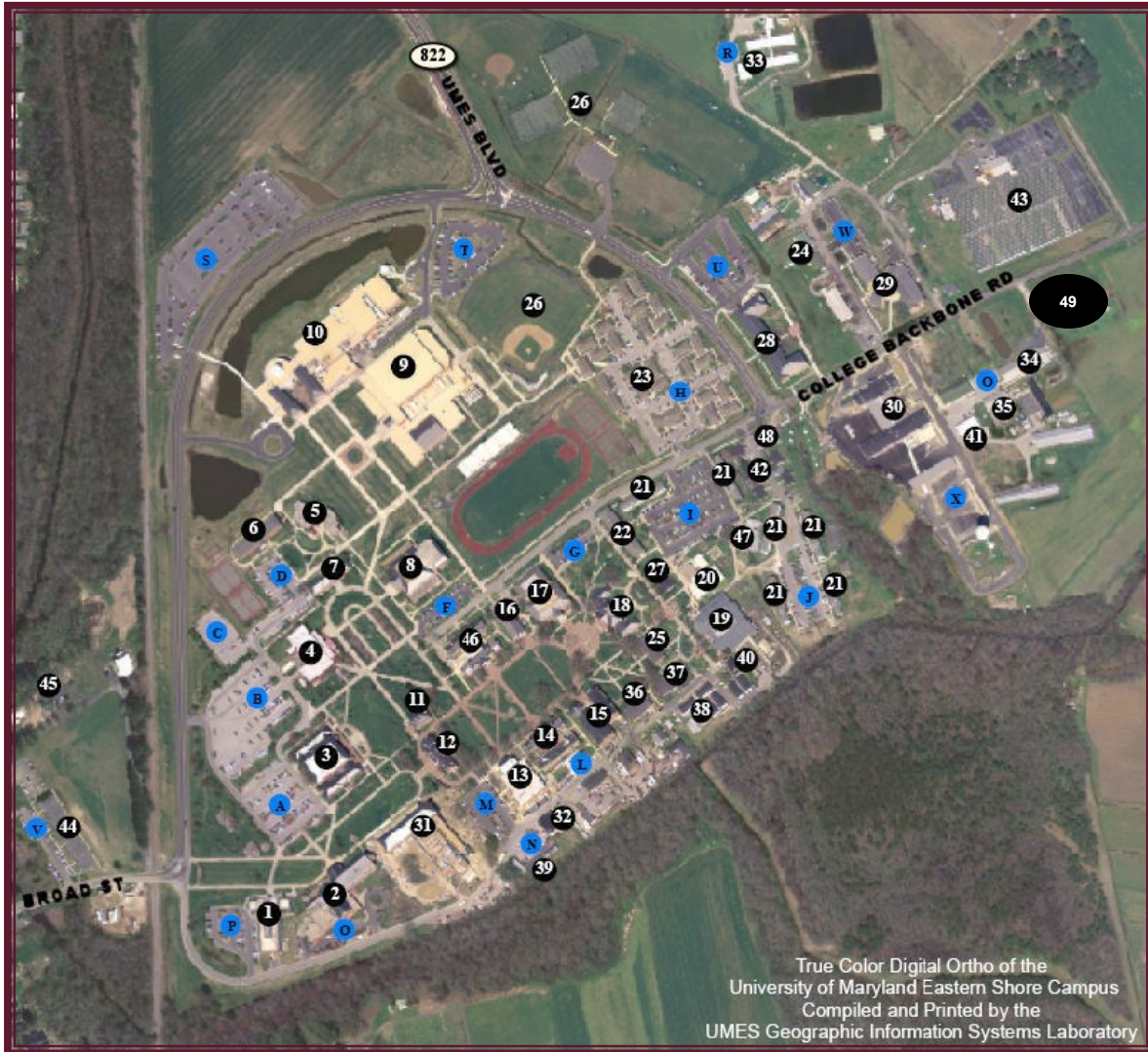
**Princess Anne, MD 21853**

### CAMPUS FASCIMILE:

**410-651- 7739**

1. [Kiah Hall](#)
2. [Richard Henson Center](#)
3. [Ella Fitzgerald Performing Arts Center](#)
4. [Student Development Center](#)
5. [Nuttle Hall](#)
6. [Court Plaza](#)
7. [Wicomico Hall](#)
8. [Tawes Gym](#)
9. [William P. Hytche Center](#)
10. [Student Services Center](#)
11. [Bird Hall \(Admissions and Financial Aid\)](#)
12. [John T. Williams Admission Building](#)
13. [Waters Hall](#)
14. [Murphy Hall](#)
15. [George Washington Carver Science Building](#)
16. [Somerset Hall](#)
16. [Wilson Hall](#)
17. [Frederick Douglass Library](#)
18. [Trigg Hall](#)
19. [Thomas/Briggs Arts and Technology Center](#)
20. [Early Childhood Research Center](#)
21. [Student Apartments](#)
22. [Plaza Hall](#)
23. [Residence Life/Student Clusters](#)
24. [Agricultural and Research Facilities](#)
25. [Tanner Airway Science Center](#)
26. [Sports Facilities](#)
27. [Linda Brown Building](#)
28. [University Terrace](#)
29. [Food Science and Technology Building](#)
30. [Physical Plant](#)
31. [Hazel Hall](#)
32. [Public Safety](#)
33. [Swine Research Facilities Center](#)
34. [Crop Research and Aquaculture Building](#)
35. [Agriculture Research Building](#)
36. [Banneker Hall](#)
37. [Spaulding Hall](#)
38. [Temporary Classroom Building 1](#)
39. [Purchasing](#)
40. [Alumni House](#)
41. [Poultry Research Center](#)
42. [Charles Drew Student Health Center](#)
43. [Commercial Greenhouse](#)
44. [Hawks Landing](#)
45. [President's House](#)
46. [Harford Hall](#)
47. [Access & Success Building](#)
48. [WESM Radio Station](#)
49. [Engineering and Aviation Sciences Complex](#)





# UMES Campus Map

The UMES campus includes over 47 buildings on 700-plus acres





**See you next year**  
**April 2019**

<http://www.umes.edu/Symposium2019>

**University of Maryland Eastern Shore**  
**9th Annual Regional Research Symposium**  
<http://www.umes.edu/Symposium2018>

*April 17, 2018*

School of Graduate Studies  
Engineering and Aviation Sciences Complex  
Suite 3041-3046  
Princess Anne, MD 21853

