



UNIVERSITY OF MARYLAND
EASTERN SHORE



BOOK OF ABSTRACTS

7TH GRADUATE EDUCATION WEEK, APRIL 17 - 22, 2023
12TH ANNUAL RESEARCH SYMPOSIUM, APRIL 20, 2023

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BioSketch

Heidi M. Anderson, President
University of Maryland Eastern Shore

Heidi M. Anderson, a native of Gary, IN, assumed the presidency of the University of Maryland Eastern Shore on September 1, 2018.

She is the 16th leader of the 1890 land-grant institution in Princess Anne that opened its doors on Sept. 13, 1886 as the Delaware Conference Academy initially under the auspices of the Methodist Episcopal Church.

A three-time graduate of Purdue University in her native Indiana, Dr. Anderson came to UMES with nearly two decades of higher education leadership experience.

“What I personally value about access, quality and opportunity – the tools that close the achievement gap – are at the core of my leadership,” she said.

She was previously chief academic policymaker at Texas A&M University-Kingsville from 2015 to 2017, where she managed a \$35 million budget and directed 22 academic departments, 10 centers and institutes. She oversaw creation of new degrees in computer science, engineering and clinical mental health counseling.

Prior to working in Texas, Dr. Anderson was chief academic policymaker at the University of the Sciences in Philadelphia from 2013 to 2015. Between 2006 and 2013, she held a variety of positions at the University of Kentucky, including professor in the Department of Pharmacy Practice and Science, assistant dean for educational innovation, associate provost for faculty affairs and vice president/associate provost for institutional effectiveness.

Her classroom experience includes work as professor and chair of Auburn University's Pharmacy Care System Department and serving an assistant professor in the University of Tennessee's College of Pharmacy.

She has served as president and vice president of the Accreditation Council for Pharmacy Education.

Dr. Anderson earned her Ph.D. in pharmacy administration, a Master's in education and a Bachelor of Science degree in pharmacy from Purdue, also a land-grant university.



Heidi Anderson
UMES President

BioSketch

Rondall Allen, Provost and Vice President for Academic Affairs.

Dr. Rondall E. Allen joined UMES on July 1, 2015 as Dean of the School of Pharmacy and Health Professions. Prior to coming to UMES, he served as the Associate Dean for Academic Quality at South University School of Pharmacy. He also served in several administrative roles during his tenure at Xavier University of Louisiana College of Pharmacy to include Director of Experiential Education, Assistant Dean for Program Assessment and Associate Dean for Student Affairs. Currently, he serves as the Provost and Vice President for Academic Affairs.

Dr. Allen has over 33 years of experience in the profession of pharmacy and has spent the last 20 years in academia. He has practiced in a variety of settings to include community pharmacy, acute care, ambulatory care, and the pharmaceutical industry. As a clinician, he developed and implemented two outpatient anticoagulation clinics in which he managed patients with deep vein thrombosis, pulmonary emboli, atrial fibrillation and other clotting disorders.

Dr. Allen was recently appointed to another four-year term by the Governor to serve on the Board of Trustees for the Maryland Health Benefit Exchange (MHBE). The MHBE is responsible for overseeing the Affordable Care Act for the state of Maryland. He also serves on the Board of Directors for TidalHealth and the Board of Directors for the Maryland Technology Development Corporation. He is a trained site-team evaluator for the Accreditation Council of Pharmacy Education and has served as a consultant for several Schools/Colleges of Pharmacy.

Dr. Allen earned his Bachelor of Science degree in Pharmacy from the Florida Agricultural and Mechanical University College of Pharmacy and Pharmaceutical Sciences and his Doctor of Pharmacy from the Xavier University of Louisiana College of Pharmacy. He completed a post-graduate Pharmacy Practice residency at Baptist Memorial Hospital in Memphis, TN and is a Fellow of the American Association of Colleges of Pharmacy. He also completed Harvard's Graduate School of Education Institute for Management in Leadership Education program.



Rondall Allen, PharmD
*Provost & Vice President for
Academic Affairs*

Welcome Message

April 20, 2023

Greetings and welcome!

I'd like to personally welcome each of you to the 12th Annual Graduate Research Symposium. This year's theme is: Avoiding the Silo: Collaborative and Holistic Approaches to Research.

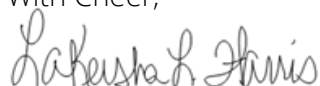
It's an exciting time for the University of Maryland Eastern Shore and our researchers who continue to find answers to the world's most challenging questions. This year's symposium focuses on collaboration and working together to find those answers, especially as we emerge from a global pandemic.

As we continue to grow and adapt to the changing world, we will continue to provide forums such as this to ensure that we bring inspired people together who want to share their expertise and talents.

This year over 160 participants have registered for the symposium and we are super excited to welcome you all to the Engineering Building to hear from your peers and learn about the exciting research they are doing. We have oral and poster presentations from faculty and students, the 3MT competition which is a symposium favorite, and special presentations from research faculty who want to help you improve your research and writing skills.

Before I close, I'd like to thank each of you for attending our 12th Annual Research Symposium and I look forward to meeting you all and learning about the exciting things you are doing in the classrooms and labs. Throughout this day, I ask you to stay engaged, ask questions, listen to the presentations and take the time to meet someone new. Thank you for making this year's symposium a success.

With Cheer,



LaKeisha L. Harris, Ph.D.
Dean



LaKeisha Harris, PhD
*Dean,
School of Graduate Studies*

UMES President & Cabinet



Dr. Heidi Anderson
President



Dr. Robert Mock
Chief of Staff



Dr. Rondall Allen
Provost and Vice President for
Academic Affairs



Ms. Latoya Jenkins
Vice President for Enrollment
Management & Student
Engagement



Mr. David Balcom
Vice President for
University Relations



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Vice President for Administration
and Finance



Mr. Matthew Taylor
General Counsel



Ms. Tara Owens
Athletics Director



Ms. Alissa Carr
AVP/Director of Marketing and
External Communications

Call for Abstracts



UNIVERSITY OF MARYLAND
EASTERN SHORE

SOAR ABOVE & BEYOND

DIVISION of ACADEMIC AFFAIRS School of Graduate Studies and Research

Call for Abstracts

Seventh Graduate Education Week
Twelfth Annual Regional Research Symposium
Engineering and Aviation Science Complex
April 20, 2023
8:00 a.m. - 4:00 p.m.

The School of Graduate Studies at the University of Maryland Eastern Shore is pleased to announce its sixth annual Graduate Education Week and 12th Annual Regional Research Symposium to be held on Thursday, April 20, 2023. The theme of this year's symposium is:

Avoiding the Silo: Collaborative and Holistic Approaches to Research

UMES's annual regional symposium strengthens regional research, builds connections amongst local institutions, and fosters a sense of community. We share and learn from each other's research and consider how local context shapes our interests and the research that we do.

In recent years, our world has faced much division. Myriad examples of this division range from large-scale impacts such as the COVID-19 pandemic, to a nationwide reckoning of social injustices, to more localized experiences on the individual level such as increased feelings of loneliness, anxiety, stress, and depression despite having access to abundant technologies that make it easier to connect with others now more than ever.

In an effort to combat this increasingly prevalent sense of division and isolation, we have chosen to highlight themes of collaboration and community for this year's annual research symposium. We are seeking to solicit submissions from researchers across disciplines, especially research that is collaborative in nature and considers both the context of the research and the researchers' personal context for conducting the research.

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/Symposium2023. Abstracts submitted in incorrect format will not be considered. The deadline for submission of abstracts is **March 17, 2023**. The registration for the symposium may be completed online at www.umes.edu/Symposium2023.

We look forward to your participation this year. If you need assistance with registration or abstract submission, please contact 410-621-3365 or umessymposium@gmail.com

Respectfully,

LaKeisha L. Harris, Ph.D., CRC

Engineering and Aviation Science Complex, Suite 3046 Princess Anne, MD 21853 Tel: (410) 651-6507 Fax: (410) 651-7571

Graduate Education Week Committee



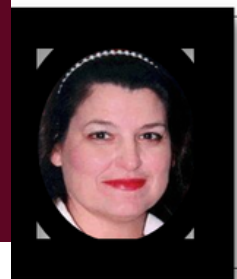
Dr. LaKeisha Harris
Convener



Ms. Angela Young
Planner-in-Chief



Dr. Wele Elangwe
Program Chair &
Book of Abstracts



Ms. Amelia Potter
Program Co-Chair



Dr. Kelsie Endicott
Editor
Book of Abstracts



Dr. Patrice
Jackson-Ayotunde
Chair of Judges



Ms. Uchenna Nwonye
Co-Chair of Judges



Ms. Rhashanda Haywood
Co-Chair of Judges



Dr. Eric May
Logistics



Mr. Preston Gross
Registration



Mr. Harry Godwin
Webmaster



Ms. Isabelle Puwo
Support Staff

Sponsors & Affiliate Institutions

Sponsors

- Office of the President
- Division of Academic Affairs
- Office of Institutional Advancement
- Office of Title III
- Center for Instructional Technology and Online Learning
- Office of Research
- Microsoft

Vendors

- Thompson Hospitality , UMES
- Crestline, Inc.
- The Print & Ship / Drewer Taylor Printing, Princess Anne, MD

Affiliate Institutions

- Agricultural Research Station, Virginia State University, Petersburg, VA 23806, USA
- Bernard J. Dunn School of Pharmacy, Shenandoah University, Winchester, VA 22601, USA
- College of Natural and Health Sciences, Virginia State University, Petersburg, VA 23806, USA
- Department of Animal and Avian Sciences, and Center for Food Safety and Security Systems, University of Maryland, College Park, MD 20742, USA
- Department of Biochemistry and Biotechnology, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
- Department of Medicine, University of California, Riverside, CA 92521, USA
- Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, CA 95616, USA
- Department of Poultry Science, University of Georgia, Athens, GA 30602, USA
- Harvard University, 29 Oxford Street, Cambridge, MA 02138
- Invasive Insect Biocontrol and Behavior Laboratory, Beltsville, MD 20705, USA
- Agricultural Research Center-West, USDA-ARS, Beltsville, MD 20705, USA
- National Oceanic and Atmospheric Administration, NCCOS, Cooperative Oxford Laboratory, Oxford, MD 21654, USA
- Salisbury University, Salisbury MD 21801, USA
- U.S. Food and Drug Administration, College Park, MD, 20740, USA
- United States Department of Agriculture, Agricultural Research Service, Dover, DE 19901, USA
- University of Maryland Extension, Wye Research & Education Center, P.O. Box 169, Queenstown, MD 21658, USA
- USDA-ARS-Environmental Microbial and Food Safety Laboratory, Beltsville, MD 20705, USA



7th Graduate Education Week Schedule

Time and Place

Tuesday - Saturday
April 18-22, 2023

Engineering & Aviation
Science Complex

Tuesday, April 18 The Nations at UMES

10:00am - 1:00pm: Country Displays - EASC Atrium
4:00pm - 6:00pm: Immigration Workshop (Virtual)
<https://meet.google.com/chm-gfwq-rwn>

Wednesday, April 19 Graduate School Fair

10:00am - 1:00pm: Graduate Programs at UMES
EASC Atrium

Thursday, April 20 12th Annual Research Symposium Day

<https://meet.google.com/kcm-bcxm-tjj>

8:00am - 1:00pm: Registration - EASC Atrium
9:20am - 10:30am: 3MT Competition - EASC 1088
10:30am - 12:00pm: Oral Presentations - EASC 1066, 1079, 1080, 1094, 1088)
12:00pm - 1:00pm: Lunch (EASC Atrium)
1:00pm - 2:30pm: Poster Presentations (EASC Atrium)

Friday, April 21 & Saturday, April 22 Writing Retreat (EASC Atrium & 1083)

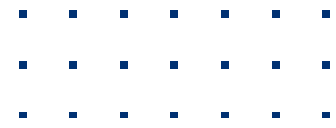
Friday, 4:00pm - 8:00pm: Grad Hawks Writing Retreat (Online)
Saturday, 9:00am - 4:00pm: Grad Hawks Writing Retreat (In-Person)

Symposium Day Schedule

8:00am - 1:30pm	EASC Atrium (Central Entrance by the Radio Station)
8:00am - 10:00am	Participant Check-in (EASC Atrium Registration Desk) Judges and Moderators Check-in (EASC Atrium across from Registration)
8:00am - 9:00am	Continental Breakfast (EASC Atrium)
9:15 am - 9:20am	Greetings (EASC Room 1088) Dr. LaKeisha Harris, Dean, School of Graduate Studies
9:20am - 10:30am	Three Minute Thesis (3MT®) Competition (EASC Room 1088) <ul style="list-style-type: none"> • Graduate Competition • Undergraduate Competition • Question/Answer Session • Awards <ul style="list-style-type: none"> ◦ 1st Place Graduate Winner ◦ 2nd Place Graduate Winner ◦ 1st Place Undergraduate Winner ◦ People's Choice Winner
10:30 am - 12:00pm	Oral Presentations
12:00pm - 1:00pm	LUNCH IRB One-on-One Consultation with Dr. Bobenko, EASC 1088
1:00pm - 2:30pm	Poster Presentations
2:30 pm - 2:45pm	Break
2:45pm - 3:15pm	Awards Ceremony (EASC Room 1088)
	THE END!!!
	Thank you and See you Next Year 2024!



Competition



Competition Rules

1. The presentation must be no longer than 3 minutes in length, or the competitor will be disqualified.
2. The presentation is considered to have begun when the student starts the presentation through movement or speech.
3. Presentations should include a single, static slide (no transitions, movement, or animation in the slide). You don't need to have a slide. Slides are not compulsory.
4. No script or cue cards may be used during the presentation; students must recite their presentation by memory.
5. No additional props are permitted (i.e. costumes, musical instruments, lab equipment).
6. Presentations must be spoken-word (i.e. no poem, rap, song). Note that passages from songs, poems, etc. are acceptable if the presentation requires quoting from such sources, but it is recommended that you limit your use of such quotations.
7. No additional electronic media (sound or video files) are permitted within the presentation.

Judging Criteria

Each competitor's presentation will be assessed according to the criteria listed below. Please note that each criterion is equally weighted.

1. Comprehension:

Did the presentation help the audience understand the research?

2. Engagement

Did the oration make the audience want to know more?

3. Communication

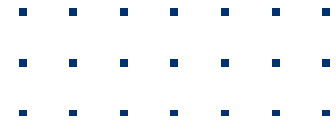
Was the thesis topic and its significance communicated in language appropriate to a non-specialist audience?

Award Categories

1. 1st Place Graduate Winner - \$500
2. 2nd Place Graduate Winner - \$250
3. Undergraduate Winner - \$500
4. People's Choice Award - \$250



Competition



Judges & TimeKeeper

Judges

Ms. Andrea Taylor

Academic Advisor & Tutoring Supervisor, Center for Access and Success

Ms. Victoria Wolf

Center for Instructional Technology and Online Learning

Dr. Prince Attoh

Organizational Leadership Program

Timekeeper

Harry Godwin

Master Student, Applied Computer Science

Undergraduate Category

Yeganeh Mansourian

Senior, Biochemistry

Mouaye Atchimon

Senior, Aviation Science

Isaac Omodia

Senior, Engineering

Moera Abate

Senior, Aviation Science

Abigail Heinz

Senior, Aviation Science

Graduate Category

Tahirah Johnson

Doctoral Student - Food and Agricultural Sciences (FASC)

Evan Eibner

Doctoral Student - Physical Therapy (DPT)

Annette Kenney

Doctoral Student - Food and Agricultural Sciences (FASC)

Priscilla Kini

Doctoral Student - Toxicology (TOX)

Brian Goodwyn

Doctoral Student - Food and Agricultural Sciences (FASC)

Rupo Lagat

Master's Student - Applied Computer Science (APSC)

Jocelyn Martin

Doctoral Student - Organizational Leadership (ORLD)

9:20am	<p>Introduction of Judges, Competition Rules and Judging Criteria. Dr. Wele Elangwe, Director of Graduate Student Services</p>
9:24am - 9:50am	Graduate Category
9:24am - 9:28am	<p>Tahirah Johnson, Doctoral Student - Food & Agricultural Sciences <i>Occurrence and pathogenic potential of Shewanella species found in oysters and seawater from the Chesapeake and Maryland Coastal Bay.</i></p>
9:28 am - 9:32am	<p>Evan Eibner, Doctoral Student – Physical Therapy <i>Exploring relationships between measures of functional mobility in patients with amyotrophic lateral sclerosis</i></p>
9:32am - 9:36am	<p>Annette Kenney, Doctoral Student - Food & Agricultural Sciences <i>Precipitation and temperature influence survival and transfer of escherichia coli to tresh produce in manure-amended certified organic soils in maryland</i></p>
9:36am - 9:40am	<p>Priscilla Kini, Doctoral Student - Toxicology <i>The poor man's disease, how do we stop it?</i></p>
9:40am - 9:44am	<p>Brian Goodwyn, Doctoral Student - Food & Agricultural Sciences <i>Presence of foodborne pathogens in pre- and post-harvest integrated crop-livestock farm environments and fresh produce on the Eastern Shore of Maryland</i></p>
9:44am - 9:48am	<p>Rupo Lagat, Master's Student – Applied Computer Science <i>Computerized disease diagnosis with clinical guidelines healthcare system</i></p>
9:48am - 9:52am	<p>Jocelyn Martin, Doctoral Student - Organizational Leadership <i>The Relationship Between Spiritual Leadership and Ethical Workplace Behaviors</i></p>
	Undergraduate Category
9:56am - 10:00am	<p>Yeganeh Mansourian, Biochemistry <i>Theory and experiment of capillary dynamics of colloidal and 2D suspensions in water</i></p>
10:00am - 10:04am	<p>Mouaye Atchimon, Aviation Science <i>Why are we still misleading luggage?</i></p>
10:04am - 10:08am	<p>Isaac Omodia, Aerospace Engineering <i>Vibration based adhesion</i></p>
10:08am - 10:12am	<p>Moera Abate, Aviation Science <i>Behind the Scenes: The Complex Operations and Management of Airports</i></p>
10:12am - 10:16am	<p>Abigail Heinz, Aviation Science (Online) <i>How confident are you in your pilot training?</i></p>
10:16 am - 10:25am	Questions/Voting of People's Choice Award
10:25 am - 10:30am	Word from Timekeeper and Judge's Representative
10:30am - 12:00pm	Egress to Oral Presentation Sessions
3:15pm - 4:00pm	Announcement of Winners

List of Presenters - ORAL PRESENTATIONS

Online Presenters: Room EASC 1088 Time: 10:30am - 12:00pm
<https://meet.google.com/kcm-bcxm-tjj>

		Page
10:30am OOG6	"No Shade, No Tea": Repurposing Language Usage Perceptions. Emily Madison* and Dr. Shannon Kelley. Department of Literacy Studies, Salisbury University, Salisbury MD 21801	22
10:45am OOG9	Optimizing Techniques For Feminized Seed Production in Cannabis sativa L..Antonio Junior*, Michael Foland and Sadanand Dhekney. Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853	23
11:00am OOG11	The Pleasure Reading Habits of American Adults: A Systematic Literature Review. Faith Thompson, Dr. Judith Franzak, Dr. Heather Porter. Department of Literacy Studies, Salisbury University, Salisbury, MD 21801	24

Faculty Presenters Room: EASC 1066 Time: 10:30am - 12:00pm

		Page
10:30am OF1	Extracts of Algae as Active Ingredients for Natural Antifouling Protection. Travis Ford*, Williams Weaver, Joseph Pitula, and Victoria V. Volkis. Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, MD 21853	19
10:45am OF2	Grapevine Genome Editing Using CRISPR/Cas9 for Trait Improvement. Papaiah Sardaru*, Carissa Jackson and Sadanand Dhekney. Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne MD 21853	19
11:00am OF3	Grapevine Trait Improvement Using Precision Breeding and Genome Editing. Sadanand Dhekney*, Papaiah Sardaru, Carissa Jackson, Juliaana Fitts and Cherie Wood. Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853	20
11:15am OF4	Knowledge, Attitude, and Perceptions of Substance-Use Disorders Among Healthcare Professions. Dr. Khaled Hasan*. University of Maryland Eastern Shore, School of Pharmacy and Health Professions, Princess Anne, MD 21853	20
11:30am OF5	Overcoming COVID-19 Vaccine Hesitancy Using Underserved High School Students as Ambassadors. Dr. Yen Dang ¹ *, Dr. Adel Karara ² , Dr. Anjan Nan ² . ¹ Department of Pharmacy Practice, University of Maryland Eastern Shore, Princess Anne, MD 21853. ² Department of Pharmaceutical Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853	20

Graduate Presenters Room: EASC 1079 Time: 10:30am - 12:00pm

		Page
10:30am OG1	An Inter-Mediating Internship Project. Harry Godwin*. University of Maryland, Eastern Shore, Princess Anne, MD 21853	21
10:45am OG2	Computerized disease diagnosis with the clinical guidelines healthcare system. Rupo Jebet Lagat*. Department of computer science and Engineering, University of Maryland Eastern Shore, Princess Anne, MD 21853	21
11:00am OG3	Early Drug Discovery of Novel Small Molecules as Potential Anti-Seizure Agents. Haywood, Rhashanda* ¹ ; Martin, Miguel ¹ ; Bell, Tracy ² ; Jackson-Ayotunde, Patrice PhD ¹ . ¹ Department of Pharmaceutical Sciences, University of Maryland Eastern Shore, School of Pharmacy and Health Professions, Princess Anne, MD 21853., ² Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853	21
11:15am OG4	Effects of Biochar on the Growth of Strawberry. Erasmus K. Aduteye*, Naveen K Dixit, and Caleb Nindo. Department of Agriculture, Food & Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853	21
11:30am OG13	Comparison Study of Coupled vs. Decoupled Aquaponics Systems: An Assessment of Lettuce and Tilapia Crop Quantity and Quality. Kayland Huckaby*, Chris Mullins, Sarah Witiak, Bryan Sayre, Robert White, and Jason Younkin. College of Natural and Health Sciences, Virginia State University, Petersburg, VA. University of Maryland Eastern Shore, Princess Anne, MD 21853	21

List of Presenters - ORAL PRESENTATIONS

Graduate Presenters: EASC 1080 Time: 10:30am - 12:00pm

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10:30am OG5	Influence of Bisphenol A on Leptin Receptor Signaling Pathways in Dopaminergic Neurons. I. Ngoka*, S. Black, A. Ishaque and A. Elnabawi. University of Maryland Eastern Shore, Princess Anne, MD 21853.	22
10:45am OG7	Non-ionic surfactant based nanovesicle (Niosome) formulations of small molecule drugs for use in epilepsy treatment. Chad Carrig1* and Dr. Anjan Nan1. 1* School of Pharmacy, University of Maryland Eastern Shore, Princess Anne, MD 21853	22
11:00am OG8	Optimizing Substrates for Vegetative Propagation of Cannabis sativa L. William Burks, Michael Foland and Sadanand Dhekney. Department of Agriculture, Food & Resource Sciences, University of Maryland Eastern Shore, Princess Anne MD 21853	23
11:15am OG10	The Effects of Cultivars on Phytochemical Contents and Antioxidant Capacities in Flowers and Kief of Industrial Hemp (Cannabis sativa L.) Grown on the Eastern Shore of Maryland. E. Noh*, S. Dhekney, and B. R. Min. Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853	24
11:30am OG12	Where is it all STEMming from: An exploration of African American female's career aspirations. Jean Goblinger*, University of Maryland Eastern Shore, Princess Anne, MD 21853	24

Undergraduate Presenters Room: EASC 1094 Time: 10:30am - 12:00pm

		Page
10:30am OUG1	A Comparative Assessment of Current Geopolitical Risks that the United States faces from China and Russia. Sashae Afflick, Justice A Brown, Moriah Ford, Darryl G Jenkins, Brittany Therres, Doria T. Wheeler and Dr. Monisha Das. Department of Business, Management, and Accounting, University of Maryland Eastern Shore, Princess Anne, MD 21853	25
10:45am OUG2	Comparison Study of Coupled vs. Decoupled Aquaponics Systems: An Assessment of Lettuce and Tilapia Crop Quantity and Quality. Kayland Huckaby*, Chris Mullins, Sarah Witiak, Bryan Sayre, Robert White, and Jason Younkin. College of Natural and Health Sciences, Virginia State University, Petersburg, VA. University of Maryland Eastern Shore, Princess Anne, MD 21853	25
11:00am OUG3	Evaluation of the Different Ways President Barack Obama and Senator Ben Cardin Used Aristotle's rhetorical tools of Ethos, Pathos, and Logos. Nyah Christen* Computer Engineering Student. University of Maryland, Eastern Shore, Princess Anne, MD 21853	25
11:15am OUG4	Monitoring the Population Dynamics of Corn Earworm on Hemp Fields in Maryland Eastern Shore. T. A. Tolosa*, S. A. Henry; and S.A. Zebelo. Department of Agriculture, Food, and Resource Sciences, University of Maryland Eastern Shore, MD 21853	26
11:30am OUG5	Studying Nicotiana tabacum Plant Regeneration as a Model System for Genetic Engineering. Destiny Parker*, Papaiah Sardaru, Carissa Jackson and Sadanand Dhekney. Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne MD 21853	26
11:45am OUG6	Theory and Experiment of Capillary Dynamics Of Colloidal and 2D Suspensions In Water. Maati McKinney1, Yeganeh Mansourian2*, Jeremy Yodh1, Lakshminarayanan Mahadevan1, Kausik S Das2 . 1Harvard University, 29 Oxford Street, Cambridge, MA 02138. 2University of Maryland, Eastern Shore, Princess Anne, MD, 21853	26

List of Presenters - POSTER PRESENTATIONS

Online Presenters: EASC 1088 Time: 1:00Pm - 2:30pm

<https://meet.google.com/kcm-bcxm-tjj>

		Page
PG9	The Effectiveness of Omega-3 Fatty Acids in Preventing and Treating Postpartum Depression. Emma Feeney*, PA-S2; Amanda Wrozek*, PA-S2, Khaled Hasan, MD, PhD. Department of Physician Assistant, University of Maryland Eastern Shore, Princess Anne, MD 21853 https://drive.google.com/file/d/1WkZNLHW3oz3V7sSqyQcCUDONf1pamOxC/view?pli=1	30

Faculty Presenters Room: EASC ATRIUM Time: 1:00pm - 2:30pm

		Page
PF1	Effect of novel N-Aryl Amide Enaminone on T-type Ca ²⁺ Channel Function. Rhashanda Haywood* ¹ ; Patrice Jackson-Ayotunde, PhD ¹ , Miguel Martin-Caraballo, PhD. ¹ Department of Pharmaceutical Sciences, University of Maryland Eastern Shore, School of Pharmacy and Health Professions, Princess Anne, MD 21853	27
PF2	Exploring Relationships Between Measures of Functional Mobility in Patients with Amyotrophic Lateral Sclerosis. Mary Layshock PT, DPT, GCS*; Michelle Sanfilippo PT, DPT, GCS; Julius Fuller; Evan Eibner; Sarah Kovalchick; Abigail Macdonald; Elizabeth Johnson; Mallorie Parsons. Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD	27

Graduate Presenters Room: EASC ATRIUM Time: 1:00pm - 2:30pm

		Page
PG1	An Exploration of Bryan Stevenson as the World's Most Prolific Servant Leader and his Impact on Prison Reform in the US: A Meta-Analysis. Rhonda Singletary*, Organizational Leadership Doctoral Program, University of Maryland, Eastern Shore, Princess Anne, MD 21853	28
PG2	An Investigation of the Relationship Between Spiritual Leadership (SL) and Ethical Behaviors (EB) in the Workplace. Jocelyn Martin* and Dr. Prince Atttoh. Department of Organizational Leadership, University of Maryland, Eastern Shore, Princess Anne, MD, 21853	28
PG3	Antibiotic resistance and mecA characterization of Staphylococcus hominis from filarial lymphedema patients in the Ahanta West District, Ghana: A cross-sectional study. Priscilla Kini ¹ *, Samuel Opoku Asiedu ² , Dr. Solomon Wireku ³ Dr. Alexander Kwarteng ³ . ¹ Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, Maryland 21853. ² Department of Medicine, University of California, Riverside, California 92521. ³ Department of Biochemistry and Biotechnology, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana 00233	28
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OF1

Extracts of Algae as Active Ingredients for Natural Antifouling Protection

Dr. Travis Ford, Dr. Williams Weaver, Dr. Joseph Pitula, and Dr. Victoria V. Volkis

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

Biofouling is the accumulation of marine organisms and their polymerized metabolites on submerged surfaces. It causes many economic and environmental problems, such as additional drag and environmental degradation in marine habitats, increase of fuel consumption, significant economic loss to commercial or military vessels, as well as environmental damage to marine environments when bacteria in biofilm are transported by the ship to non-native regions. Such introductions can trigger harmful blooms or detrimental competition with native species. With traditional antifouling biocides such as Tributyltin (TBT) being highly toxic and subsequently banned by the U.S. and other countries, there is a need for environmentally friendly and non-toxic antifouling solutions. Our approach is to use extracts of antioxidants, terpenes, and essential oils from natural and renewable sources, encapsulate it into biocompatible polymers and create protection films. Here we present results for extracts of some common algae by antioxidants, terpenes and essential oils. Antioxidants work as scavengers of free radicals, that catalyze polymerization of metabolites to form initial sticky film, whereas essential oils and terpenes are known for their antibacterial properties, preventing bacteria from forming metabolites on the surface. Full phytochemical screening of extracts from some common algae, GCMS analysis, quantification of antioxidant, encapsulation into polymers, antifouling tests, post-test surface analysis and comparison with other antifouling formulations is presented.

OF2

Grapevine Genome Editing Using CRISPR/Cas9 for Trait Improvement

Dr. Papaiah Sardaru*, Carissa Jackson and Dr. Sadanand Dhekney

Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne MD 21853, USA

Grapevine genetic improvement using conventional breeding techniques has limited application for trait improvement because of extreme heterozygosity of the *Vitis* genome, which results in hybrid cultivars with intermediate fruit and wine quality. Grapevine precision breeding and genome editing involves the utilization and modification of genetic sequences found solely in the *Vitis* genome and accelerates the outcomes of conventional breeding in trait improvement. In the current study, a grapevine phytoene desaturase 1 (PDS 1) gene was targeted using CRISPR/Cas-9 mediated genome editing. Embryogenic cultures from *Vitis vinifera* 'Thompson Seedless', 'Merlot' and 'Superior Seedless' were initiated from in vitro micropropagation cultures or unopened floral explants. Following co-cultivation with *Agrobacterium* harboring the CRISPR/Cas9 construct targeting the PDS1 gene and subsequent culture, edited mutant lines were identified on the basis of their bleached appearance and malformed leaves and stems. PCR and DNA sequencing was carried out to calculate the editing efficiency and was expressed as the total number of lines generated versus the number exhibiting mutations at the PDS1 gene. Among the various lines recovered and tested, greater than 80% of mutant lines exhibited large scale deletions and insertions at the PDS1 alleles. This included random nucleotide substitutions and deletion of nucleotides ranging from 5-15 bp and these mutations were positively correlated with the plant phenotype. The observations indicate that CRISPR/Cas9-mediated editing could precisely generate biallelic mutants and could be potentially used to target traits of commercial importance for rapid genetic improvement. We are currently using genome editing to target genes involved in disease resistance and quality improvement such as novel berry colors and decreased browning. Genome editing can thus be successfully utilized for rapid improvement of commercial grapevine cultivars while bypassing limitations imposed by conventional breeding techniques.

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OF3

Grapevine Trait Improvement Using Precision Breeding and Genome Editing **Dr. Sadanand Dhekney***, Dr. Papaiah Sardaru, Carissa Jackson, Juliaana Fitts and Cherie Wood

Grape is the most valuable fruit crop in the United States due to its ability to be converted into wine and other products, in addition to being consumed fresh. Genetic improvement of grapevine using conventional breeding techniques is difficult due to the heterozygous nature of the grape genome, long juvenile period, and complex genetic control of enological traits. Precision breeding is defined as an approach to plant genetic improvement that transfers only specific traits among sexually compatible relatives via the relatively stable mitotic cell division pathway in order to avoid the significant genetic disruption imposed upon conventional breeding by meiosis. Genome editing involves the precise targeting of specific genes in the *Vitis* genome to induce trait improvement while still maintaining the existing enological and viticultural characteristics of commercial cultivars. Recent advances in *Vitis* genome sequencing combined with optimization of grapevine regeneration protocols and gene insertion techniques have enabled the successful implementation of precision breeding and genome technology. A number of constitutive and tissue-specific promoters, reporter and selection marker genes, and border sequences required for the development of grape-derived genetic constructs have been identified and successfully tested. This information has been applied for optimizing CRISPR/Cas9-mediated genome editing technologies to target specific traits in the *Vitis* genome. We are currently utilizing precision breeding and genome editing for improving resistance to grapevine powdery mildew and improving quality traits such as novel berry colors and decreased fruit browning. The development of such systems can overcome limitations encountered in conventional breeding and enable rapid improvement of existing grapevine cultivars for abiotic/biotic stress tolerance and qualitative traits.

OF4 Knowledge, Attitude, and Perceptions of Substance Use Disorders Among Healthcare Professions **Khaled M. Hasan, MD, MS, PhD***

¹Associate professor, Physician Assistant Department, School of Pharmacy and Health Professions, University of Maryland Eastern Shore

This study aimed to assess the knowledge, attitudes, and perceptions of student pharmacists toward substance use disorders. Student pharmacists were surveyed through Google Form, and the responses were analyzed using Excel 2016 and StatView 5.0. Enrolled student pharmacists who participated in this study were from three different academic years, and their participation was voluntary and anonymous. Approximately 60% of pharmacy students identified the age group of 18-25 as the highest risk of developing opioid addiction. Similarly, about 50% of these students noted that marijuana use is most prevalent among individuals aged 13-19. While all surveyed students acknowledged that most opioids are addictive, only 63% believed the same to be true for marijuana. Although the students acknowledged the use of opioids in treating cancer, only 45% of them believed that marijuana increases the risk of cancer. This study demonstrated different levels of knowledge, attitudes, and perception toward substance use and misuse among student pharmacists. Therefore, pharmacy schools need to consider in-depth coverage of substance use disorders in several courses of their curriculum from the molecular effects to the clinical aspects and management.

OF5 Overcoming COVID-19 Vaccine Hesitancy Using Underserved High School Students as Ambassadors **Dr. Yen Dang1***, Dr. Adel Karara², Dr. Anjan Nan²

¹Department of Pharmacy Practice, University of Maryland Eastern Shore, Princess Anne, MD 21853

²Department of Pharmaceutical Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Studies show that educating children can influence the attitudes of their community as a method to overcome vaccine hesitancy. The program's objective is to develop a pharmacy-led curriculum comprised of evidence-based practices on overcoming SARS-CoV-2 vaccine hesitancy among Somerset County high school students. An interdisciplinary team implemented an interactive SARS-CoV-2 vaccine curriculum for underrepresented high school students based on the WHO SAGE Vaccine Hesitancy Matrix. Afterwards, these students helped design two student-hosted videos featuring different topics to improve vaccine confidence. Students also applied the principles learned at a COVID-19 vaccination clinic. The McNemar test was used to evaluate survey changes among matched respondents with an alpha of 0.05. Forty-five high school students participated in the 4-month program and significantly more students agreed in post-tests that "I have adequate knowledge about SARS-CoV-2 disease" ($p = 0.0412$), and "I have adequate knowledge about the SARS-CoV-2 vaccine" ($p = 0.0094$). Overall, 85% of students agreed that the program was well organized; 82% would recommend the program to others. Twenty-nine students (74%) agreed that "I have talked to my family about information I learned during the program", and 20 students (51%) agreed that "I am comfortable serving as a vaccine ambassador where I can promote the SARS-CoV-2 vaccine." This program is innovative by combining the expertise of pharmacists with influential community leaders to educate students from a medically underserved population. Ultimately, this program allowed for students to become vaccine champions and serve as SARS-CoV-2 vaccines ambassadors to empower their community to get vaccinated.

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OG1

An Inter-Mediating Internship Project

Harry Godwin*

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

This project is an Inter- mediating internship project incorporated into the computer science departmental master's project. It encompasses the functions done as a web developer for the School of Graduate Studies here at the University of Maryland Eastern (UMES). Although the departmental website associated with the Graduate office is at a standard level, this project is to enhance the functioning feature of the webpages. Illustrations of these features are explained in the User Interface section of the paper. In addition, to accomplish these features, the following will be considered during the development process: accessibility, compatibility, navigability, readability, and usability.

OG2

Computerized Disease Diagnosis With The Clinical Guidelines Healthcare System

Rupo Jebet Lagat*

Department of computer science and Engineering, University of Maryland, Eastern Shore, Princess Anne, MD 21853

Medical data mining has successfully converted raw data into useful information. This data assists medical professionals in better diagnosing and treating diseases. This paper examines data mining applications that were only used on an open-source diabetes dataset, which source is data.world. According to International Diabetes Federation (IDF), about 1.1 million children and adolescents (0-19 years) suffered diabetes type 1 worldwide as of 2019, and more than 132,000 children and adolescents tested with type 1 diabetes each year. Diabetes is diagnosed or predicted using data mining techniques such as association, classification, clustering, and pattern recognition. This paper presents a classification model using the Decision Tree algorithm with an accuracy of 98.43%, compared to Random Forest with an accuracy of 98.42%, Logistic Regression accuracy of 84.33%, and Linear Regression accuracy of 17.18%. The classification accuracies of pre-processed data are compared in this paper. The results clearly show that pre-processed data improves classification accuracy. To verify the accuracy of the results obtained, Receiver Operating Characteristic (ROC) curve was used providing a visual representation of the trade-off between sensitivity and specificity, important in evaluating the performance of a diagnostic test. The results obtained in this project demonstrate the potential of using machine learning algorithms to improve the accuracy and efficiency of disease diagnosis in healthcare systems.

OG3

Early Drug Discovery of Novel Small Molecules as Potential Anti-Seizure Agents

Rhashanda Haywood*¹; Dr. Miguel Martin¹; Dr. Tracy Bell²; Dr. Patrice Jackson-Ayotunde,¹

¹Department of Pharmaceutical Sciences, University of Maryland Eastern Shore, School of Pharmacy and Health Professions, Princess Anne, Maryland 21853.

²Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, Maryland 21853

Epilepsy is one of the most common neurological disorders, with 3 million people in the United States and 65 million people worldwide living with this disorder. In America, 1 in 26 individuals will eventually develop epilepsy in their life. Despite the success of several anti-seizure drugs with improved side effect profiles, there are still 30-40% of patients that suffer from uncontrolled seizures. Thus, there is an unmet medical need for new therapeutics that lead to full seizure control with reduced side effects for patients. Our lab engages in early drug design and discovery of novel small organic molecules as potential anti-seizure analogs, for epilepsy. The objective of our multi-interdisciplinary research team is to design, synthesize and identify enaminone molecules that alter seizure related molecular targets. Preliminary studies performed by our research team, led to the discovery of small organic molecule IAA65, a potent T-type voltage-gated calcium channel (T-VGCC) blocker. The objective of the work presented is to utilize hit-to-lead optimization studies to build a library of 20 IAA65 derivatives to identify new lead compounds that will inhibit T-VGCCs. To validate the biological activity of the enaminone analogs in a battery of preclinical seizure rodent models, studies are conducted at the National Institutes of Neurological Disorders and Stroke Epilepsy Therapy Screening Program, NIH. Molecule RHB77 is currently undergoing investigation in acute rodent seizure models, to determine the efficacy and safety as an anti-seizure agent.

OG4

Effects of Biochar on the Growth of Strawberry

Erasmus .K. Aduteye*, Dr. Naveen K. Dixit, and Dr. Caleb Nindo

1* Department of Agriculture, Food & Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

The use of biochar in agriculture has gained attention due to its potential to improve soil fertility, crop productivity, and carbon sequestration. The impact of biochar on strawberry growth and development was investigated in the present study. The experiments were carried out in a greenhouse using a randomized complete block design with four replicates. Topsoil for this experiment was collected from the UMES farm and mixed with biochar (Wakefield Kickstart biochar from Biosoild; Wakefield, MO). The treatments included a control (no biochar) and four rates of biochar (3%, 5%, 10%, and 20%

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w/w). The strawberry variety 'Portola' was planted in the last week of June 2022 in pots. Data were collected on growth parameters such as plant height, plant length, plant width, number of flowers, number of runners, and disease symptoms. Our data revealed that biochar showed a significant effect on the growth parameters 60 days after transplanting. Among the biochar amendment rates, 10% had the greatest influence on the overall growth of strawberries. Even though the 10% biochar amendment rate had the greatest influence on the growth parameters, this research must be repeated to confirm the consistency of the result .

OG5 Influence of Bisphenol A on Leptin Receptor Signaling Pathways in Dopaminergic Neurons

Ijeoma Ngoka*, Sherene Black, Dr. Ali Ishaque and Dr. Ahmen Elnabawi
University of Maryland Eastern Shore, Princess Anne, MD

Genetic, environmental, behavioral, social, and economic factors all have a role in obesity. An extensive body of evidence has demonstrated that endocrine regulators such as leptin mainly act on the hypothalamus to regulate food intake and body weight. In addition, expression of leptin receptors in other regions of the brain such as the dopaminergic (DA) neurons suggests that leptin signaling can act on other brain regions to mediate the reward value of nutrients. Emerging evidence support the hypothesis that environmental contaminant exposure, particularly those occurring in early-life, may interfere with homeostatic control and induce or exacerbate obesity. Early life exposure to Bisphenol A (BPA), an endocrine disrupting chemical, is known to result in various adverse health effects. Several studies have demonstrated that BPA altered the endocrine-metabolic pathways in adipose tissue, increasing the risk of metabolic diseases and obesity. The aim of this study was to investigate the effects of BPA on leptin signaling pathways in dopaminergic neurons using human neuroblastoma SH-SY5Y cells. Leptin or BPA were administered to cells in varying concentrations either separately or in combination. Cell viability, leptin receptor protein expression, orexigenic agouti-related peptide (AgRP) levels and signal transducer and activator of transcription (STAT3) protein expression were assessed. Future direction for this study will include further testing into other mechanisms by which BPA exposure influences obesity

OG6 "No Shade, No Tea": Repurposing Language Usage Perceptions

Emily Madison & Dr. Shannon Kelley
Department of Literacy Studies, Salisbury University, Salisbury MD 21801

Linguistic segregation refers to the exclusionary practices that impact individuals that use marginalized dialects such as Black Language or African American Vernacular English (AAVE) (Baker-Bell, 2020). To explore the growing concern around exclusionary practices associated with African American girls, this pilot project examines how African American adolescent girls leverage language (marginalized dialects) with their peers and adults across multiple contexts (e.g., in-school and out-of-school contexts) in an exploratory case study. Two theoretical frameworks situate the project: positioning theory (Davies & Harré, 1990; Green, 2011; Frankel, 2018) and critical discourse analysis (Fairclough, 2013; Gee, 2011). Position theory allows for a deeper examination of why individuals communicate or enact certain behaviors based on assigned labels or positions in multiple contexts. At the same time, critical discourse analysis is suitable for interrogating language choices at the utterance level from a cultural lens by incorporating criticality.

The case in the pilot project is bound by and within the "Young Ladies of Excellence" (pseudonym) mentoring group, which provides social, emotional, and instructional support to African American girls ages 12-16. Throughout the study, the girls are taking an Effective Communication workshop to examine and interrogate issues related to exclusionary practices connected to communication through the following: six in-person observations, six individual semi-structured interviews, one culminating semi-structured interview, and document analysis of journal writing from the mentee's workshop participation. By the project's end, the researcher seeks to understand the values, beliefs, and ideologies associated with discursive choices made by participants to confirm or disconfirm perceptions related to AAVE usage and linguistic segregation.

OG7 Non-ionic Surfactant Based Nanovesicle (Niosome) Formulations of Small Molecule Drugs for Use in Epilepsy Treatment.

Chad Carrig1* and Dr. Anjan Nan1

1* School of Pharmacy, University of Maryland, Eastern Shore, Princess Anne, MD 21853

Epilepsy is the fourth most common global neurological problem after migraine, stroke, and Alzheimer's disease as reported by the World Health Organization (WHO). A person is considered epileptic when two or more unprovoked seizures occur. Epilepsy is a chronic central nervous system (CNS) disorder categorized by disrupted neuron activity in the brain, leading to recurrent seizures and/or periods of strange behavior, sensations, and sometimes loss of consciousness. The blood brain barrier limit on the entry of exogenous molecules is the largest challenge for delivering therapeutic agents to the CNS Development of novel nanocarriers allows for the delivery of pharmacological therapeutics of varying activities along with reduced side effects and improved targeting properties. Niosomes, non-ionic surfactant-based vesicles, have drawn great interest in various biomedical applications, owing to their unique characteristics. Niosomes are able to: 1) effectively encapsulate both hydrophilic and lipophilic drugs, 2) protect the drug from rapid degradation or clearance while being non-immunogenic, 3) enhance drug concentration in

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target tissues, and 4) unique manufacturing properties including high chemical stability, ease of production, formulation versatility, and low cost. The aim of this study is to prepare and characterize the physicochemical properties of niosome encapsulated small molecule drug (Phenytoin). Multi-Angle Dynamic Light Scattering (MADLS) was used for particle size and size distribution analysis. Electrophoretic Light Scattering (ELS) was used to measure the zeta potential and indicated sample stability and/or propensity to aggregate. Synthesized niosomes were found to have a monodisperse population at 200 nm with positive/negative zeta potential depending upon formulation.

OG8

Optimizing Substrates for Vegetative Propagation of Cannabis Sativa L.

William Burks*, Dr. Michael Foland and Dr. Sadanand Dhekney

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The legalization of industrial hemp under the 2014 and 2018 US farm bills has led to a rapid increase in hemp production in the United States. Industrial hemp propagation for cannabinoid production is achieved using softwood cuttings and feminized seed. The use of clonal material derived through vegetative propagation ensures the exclusive cultivation of female plants resulting in high biomass yield and cannabinoid quality. In the current study, 3 substrates were evaluated to identify those which would produce vigorous and healthy clonal propagation material. Cannabis sativa L. 'Cherry Soda' and 'Purple' stock plants that were derived through micropropagation were used in the current study. Actively growing shoots from plants were cut into 4-6-inch cuttings, dipped in a rooting hormone and transferred to either potting mix, Oasis™ cubes or an aeroponic system for rooting. Cuttings under all three treatments were maintained under a 16 h light photoperiod, covered with transparent plastic domes and routinely sprayed with distilled water to maintain high humidity. After 3 weeks, the number of roots produced in each substrate was recorded to obtain the rooting percentage. Additionally, clone quality was estimated by recording the number of rooted plants exhibiting interveinal chlorosis in the three treatments. Among the various substrates tested, the maximum rooting percentage was observed in 'Purple' cuttings under the aeroponics system (95%) followed by 'Cherry Soda' in Oasis™ (90%). The rooting percentage in the potting mix substrate ranged from 80-84% for the two cultivars. In contrast, the best clone quality as indicated by the lowest percentage of interveinal chlorosis (0%) was observed in the potting mix, followed by the Oasis™ (30-40%), while the highest level was observed in the aeroponics system (70-80%). We are currently studying plant performance after transfer to potting mix, to identify the best substrate for producing healthy clones. The optimization of propagation techniques will enable growers produce healthy and vigorous clonal material for maximum biomass and cannabinoid yields, and boost expansion of the hemp industry in the United States.

OG9

Optimizing Techniques For Feminized Seed Production in Cannabis Sativa L.

Antonio Junior*, Michael Foland and Sadanand Dhekney

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Medicinal and recreational uses of Cannabis sativa-derived cannabinoids such as Cannabidiol and Δ -9-tetrahydrocannabinol have increased in recent years. Cannabinoid production involves the exclusive cultivation of female plants due to the high level of secondary metabolites occurring in their inflorescences. Cannabis is a dioecious plant species and seedling-derived plant populations exhibit segregation for male and female plants. The production of predominantly female plants through sexual production can be achieved using seed feminization. Seed feminization involves treating female plants with silver thiosulfate (STS), which causes plants to produce both male and female flowers. Following self-pollination and fertilization, seeds and seedlings are predominantly female thereby ensuring high yield and quality of cannabinoids. In this study, we evaluated the efficacy of 3 STS concentrations to identify the optimum dose for efficient seed feminization. Female plants of C. sativa 'Bliss' were obtained by clonal propagation and maintained under a long day photoperiod of 16:8 light/dark ratio for 3 weeks. Plants were then thoroughly sprayed with either a 2.0, 4.0- or 6.0-mM STS solution and maintained under the same photoperiod for an additional week. The control plants were sprayed with distilled water. Plants were then transferred to short photoperiod of 8:16 light/dark ratio to induce the production of male flowers. The degree of masculinization was recorded by counting the number of male flowers at each node. Following self-pollination and fertilization, seed set was recorded, and the number of seeds collected in each treatment was recorded. Among the various STS treatments studied, the highest degree of masculinization was observed in 6.0 mM STS (90.4%), followed by 4.0 mM (72.5%), and 2.0 mM (61%) while the control plants did not produce any male flowers or seed. The number of seeds produced was higher in 2.0- mM STS with an average of 33 seeds per plant compared to 4.0 mM (32) and 6.0 mM (8). Similarly, a higher seed germination rate was observed from plants sprayed with 2.0-mM STS (68.33%) compared to 4.0 mM (58%), and 6.0 mM (54%). These findings suggest that 2.0 mM STS is the optimum concentration for production of viable seeds. We are currently growing the F1 generation of seedlings to determine plant sex. Optimizing the STS concentration for seed feminization will enable large-scale production of female plants through sexual production for cannabinoid hemp cultivation.

Oral Abstracts - Graduate

(Titles in Alphabetical Order)

OG10 The Effects of Cultivars on Phytochemical Contents and Antioxidant Capacities in Flowers and Kief of Industrial Hemp (*Cannabis sativa* L.) Grown on the Eastern Shore of Maryland.

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Industrial hemp, legally defined as *Cannabis sativa* L. with total Δ^9 -tetrahydrocannabinol (THC) concentrations of less than 0.3% on a dry weight basis, has gained attention for its nutritional and medicinal values since its legalization in the U.S. The health benefits of industrial hemp are primarily associated with its phytochemicals, especially cannabinoids. The composition and levels of phytochemicals in plants can be affected by genetic factors. The objective of this study was to determine the effects of cultivars on phytochemical contents and antioxidant capacities in the flower and kief of industrial hemp grown on the Eastern Shore of Maryland. Flowers were collected from 4 cultivars (The wife (TW), Bubba Kush (BK), C4, and Cherry wine (CW)) and kief was collected from 3 cultivars (BK, C4, and CW). Total phenolic and flavonoid contents, and antioxidant capacities were determined, and identification and quantification of cannabinoids were conducted using HPLC. Six cannabinoids were detected. The highest was Cannabidiolic acid (CBDA), followed by CBD, Δ^9 -Tetrahydrocannabinolic acid (THCA-A), Cannabigerolic acid (CBGA), Cannabichromene (CBC), and THC, regardless of the cultivars. The phytochemical contents and antioxidant capacities in the kief of industrial hemp were significantly higher than those in flowers ($P < 0.05$). CW had the highest total cannabinoid concentrations, total phenolic and flavonoid contents, and antioxidant capacities in both flowers and kief. These results suggested that CW could be the better source of cannabinoids for this region and efforts are needed to identify and/or develop cultivars that are suitable for local conditions with high CBD and low THC.

OG11 The Pleasure Reading Habits of American Adults: A Systematic Literature Review

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Recent reports by the National Endowment for the Arts (NEA) indicate that adults are not reading in their leisure time as much as they used to. This is a concern because leisure reading has been linked to many benefits, such as a higher likelihood to vote and engage in civic activities. But is reading really "at risk," or has the nature of literacy changed in our ever-shifting world? Seeking to explore that question, over 30 articles were reviewed in this systematic literature review. We ask What does the research say about adult leisure reading? This literature review elucidates gaps in the knowledge base around leisure reading and offers directions for future research. Notable findings include the increase of nonfiction reading and digital reading formats. The NEA and other institutions restrict definitions of leisure reading to literary print-based reading. These findings, then, suggest a mismatch between actual reading habits of adults and the reading habits measured in reports. Further, we complicate leisure reading studies by drawing attention to their preoccupation with volume of reading over experiences of reading and underexploration of the sociocultural identities of readers. We argue that national reports do not consider the reading possibilities of today, and, therefore, the situation may not be as dire as previous research suggests. Implications of this research include the need for scholarship that draws from diverse populations (i.e. those traditionally not identified as "readers") and uses qualitative methods that focus on the experiences of reading.

OG12 Where is It All STEMming from: An Exploration of African American Female's Career Aspirations

Jean Goblinger,*

University of Maryland Eastern Shore, Princess Anne, MD 21853

There is a dire need to increase science, technology, engineering, and mathematics (STEM) workers in the U.S. The lack of women and racial minorities represented in these fields has heightened this shortage (Neuhauser & Cook, 2016). Lack of STEM career interest and aspiration is hurting society's economic culture and growth at a pivotal time where there is an increasing reliance on complex technological and science advances (Holmes et al., 2018). Demand in these fields will only continue to grow exponentially. According to PwC (2015), in order to sustain these growing career needs, an 11.7% increase in engineers, a 9% increase in business analysts and programmers, and an 8% increase in natural and physical scientists is required. This major decline in STEM disciplines also has international implications, impacting productivity and competitiveness (Office of Chief Scientist, 2013). According to O'Brien et al. (2016), societal expectation, influences from peers and parent, as well as threatening STEMs climates result in a lack of minorities pursuing STEM careers. Casad et al. (2019) defines threatening academic climates as those that encourage prejudice and discrimination, suggesting gender and race are relevant in suitability for education and STEM careers. Efforts have been devoted to make policies and develop programs that would encourage STEM persistence among the youth as they prepare for college (Watt, 2008). Strong educational leadership is required to address underlying issues that can impact African American females' levels of self-efficacy and role model support, which are contributing to their career aspirations.

Comparison Study of Coupled vs. Decoupled Aquaponics Systems: An Assessment of Lettuce and Tilapia Crop Quantity and Quality

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Climate change is negatively impacting global agriculture and aquaculture. Extreme weather changes combined with ocean acidification and warming impact communities that depend on agriculture and fisheries for food security and economic stability. Aquaponics is one part of a larger solution that can ease these negative effects. This study aims to find differences in crop quantity or quality in *Oreochromis* and *Lactuca sativa* var. *capitata* grown in coupled and decoupled aquaponic systems. To compare these systems, 50 tilapia, and 72 lettuce plants were grown in each system over two 6-week growing periods. Daily and weekly water quality checks were performed to track system changes and differences. To evaluate tilapia crop quantity, sample weights were taken at the beginning and end of each growing period. Myosin protein denaturation of sampled filet tissue was examined using SDS-PAGE to evaluate tilapia quality. Fresh weight, dry weight, stomatal density, and nutrient content were assessed to evaluate the lettuce crop. No significant difference was found concerning tilapia crop quantity or quality. However, coupled lettuce heads grew up to 55% larger with a 21% lower stomatal density than decoupled lettuce. Coupled lettuce also contained higher nitrogen, potassium, zinc, manganese, and in some cases iron contents than decoupled lettuce. These observed differences, believed to be the result of water quality differences, can assist producers in selecting the system that best fits their labor, financial, and spatial capacities. This will help them supply environmentally conscious food to vulnerable communities despite global climate changes.

Oral Abstracts - Undergraduate

(Titles in Alphabetical Order)

OU1 A Comparative Assessment of Current Geopolitical Risks that the United States faces from China and Russia

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

In this group assessment by undergraduate students, our study objective is to discuss the types of risks that American companies face while trading and investing in China and Russia. The economic and market disruptions brought about by the pandemic and the Ukraine/Russia conflict, has increased the need for risk modeling. Companies and banks that have international operations or do business with Russian and Chinese counterparts need to adjust their risk models in real time by analyzing large datasets. Some of these sources will be internal to companies. We do not have access to internal company sources. External sources we are using will rely on readily available data. We will use a framework of risks and use IMF/ World Bank data to compare the three nations on accepted parameters of governance. The indicators cover voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. We will make suggestions for a way forward that is mutually beneficial to business, markets, and consumers.

OU2 Evaluation of the Different Ways President Barack Obama and Senator Ben Cardin Used Aristotle's rhetorical tools of Ethos, Pathos, and Logos.

Nyah Christen* Computer Engineering Student,
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Aristotle was a Greek philosopher considerably recognized for his great concepts of how to persuade people. One of the most powerful concepts created by Aristotle is called the three appeals (or rhetorical tools). The three appeals are called Ethos, Pathos, and Logos. Ethos refers to a speaker's ethics and character. Aristotle made the notion that if a person were perceived to be credible, and have good character, this would make them more persuasive. Pathos refers to appealing to an audience's emotions; this tool says, 'agree with me, because I care'. Logos refers to the facts and logic of a discussion. With evidence present, it is much easier to persuade your audience. National leaders have a great effect on the perspectives of their audience due to their position. Effectively utilizing Aristotle's rhetorical tools can affect this nation's economy greatly, when in the position of a president or senator. For this reason, I will be analyzing the rhetorical appeals and audience impact of two speeches- One by former President Barack Obama' and the other by Senator Ben Cardin.

Oral Abstracts - Undergraduate

(Titles in Alphabetical Order)

OU3 Monitoring the Population Dynamics of Corn Earworm on Hemp Fields in Maryland Eastern Shore

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Hemp, *Cannabis sativa* L., was legalized recently in the U.S. with <0.3% delta -9-tetrahydrocannabinol content. Following its legalization, hemp has grown widely in North America. Unfortunately, corn earworm (CEW) *Helicoverpa zea* emerged as a key insect pest of hemp in the Mid-Atlantic and southeastern U.S., and hemp growers face unexpected production challenges and yield loss due to limited pest management options. Here, we provided a three years field assessment of CEW-hemp interaction and population dynamics of CEW and recommended a possible timeline for pest management. The experiment was conducted to monitor corn earworm on hemp for three consecutive years from July to October in two locations at University of Maryland Eastern Shore. The adult CEW population was higher from late July through early September and declined toward the end of September. However, the larvae population increased significantly from the end of August until harvest and caused considerable damage to the hemp flowers in both locations. The three years population dynamics study of CEW could serve as a guideline to design more time-effective and efficient pest management strategies to tackle CEW and other lepidopteran pests in hemp.

OU4 Studying *Nicotiana Tabacum* Plant Regeneration as a Model System for Genetic Engineering **Destiny Parker***, Papaiah Sardaru, Carissa Jackson and Sadanand Dhekney

Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne MD 21853, USA

Nicotiana tabacum (Tobacco) has been widely used as a model plant system for in vitro culture and functional genomics studies. Rapid development of shoots and roots is observed under in vitro conditions, and whole plants can be obtained within 6-8 weeks of culture initiation. This makes it an attractive system for testing genes for functional genomics analyses. In the current study, tobacco plant regeneration was studied to test functionality of various reporter gene systems. Leaf tissues of tobacco 'Samsun' were obtained from greenhouse-grown plants and excised into small discs for use as explants. The explants were surface-sterilized in a commercial bleach solution and then placed on Murashige and Skoog (MS) medium containing 4.4 μM BAP and 0.6 μM NAA. Cultures were placed under light photoperiod for shoot induction. Resulting shoots were transferred to medium containing 0.5 μM NAA for rooting to obtain whole plants. The production of meristemoids was observed after 8-10 days on culture medium. These structures progressively developed to produce shoots, which elongated in length after 3 weeks on the culture medium. Profuse shoot proliferation was observed in all cultures. Shoots produced prolific rooting following transfer to MS medium containing NAA. We are currently conducting experiments to study expression of the betalain synthase and anthocyanin genes in cultures and plants. The use of these reporter genes will assist in the visual identification of transgenic cultures and improve the efficiency of transgenic plant recovery for functional genomics studies.

OU5 Theory and Experiment of Capillary Dynamics of Colloidal and 2D Suspensions In Water

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Fluid flow through capillaries is ubiquitous in both the natural and the industrial world, and ranges from blood flow through capillaries, water transport in trees, groundwater flow through soil or in underground aquifers, to oil/gas extraction, biomedical applications etc. Understanding the kinetics of fluid flow through a capillary is thus of enormous importance from both fundamental and application points of view. We will present a simple experimental method to benchmark the theoretically predicted scaling laws for water rising through a capillary tube. Analytical modelling reveals that rise of Newtonian liquids in a capillary tube can be divided into four distinctive regions: 1) inertial regime, where height of the liquid $z(t)$ scales as t^2 in very early stage, and then scales as t , followed by 2) viscous regime, where it scales as $t^{1/2}$, commonly called as Washburn regime, and finally, 3) gravity dominated exponential region. Moreover, using this innovative and inexpensive experimental method using videos of the capillary rise captured by a regular cell phone camera and then analyzing the videos using numerical image analysis techniques, we will show how the dynamics of the capillary driven flow for colloidal suspensions, and 2D suspensions such as graphene oxide solution in water deviate from classical Newtonian fluids. We will demonstrate that a simple and inexpensive experimental technique can capture intricate dynamical behaviors of fluid flow through capillaries. It is possible that in future new type of diagnostic methods can be developed based on this technique to detect changes in blood morphology, thereby detecting potential diseases. The Lucas-Washburn equation assumes that fluids are incompressible Newton ones and that capillary channels all have the same radius. While Newtonian fluids are assumed to be 1D with consistent viscosity, this study focused on using non-Newtonian fluids such as Graphene Oxide. Graphene Oxide is similar to blood in having particles inside and being soluble in water. In this project, the rising pattern of Graphene Oxide was studied to understand how blood would act while rising from the capillary in order to develop a diagnostic device for blood-related diseases such as Sick Cell Disease.

Poster Abstracts - Faculty

(Titles in Alphabetical Order)

PF1

Effect of Novel N-Aryl Amide Enaminone on T-type Ca²⁺ Channel Function Rhashanda Haywood*¹; Patrice Jackson-Ayotunde, PhD¹, Miguel Martin-Caraballo, Ph.D.

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N-aryl amide enaminones have been identified as potential anticonvulsants for the treatment of drug-resistant epilepsy. T-type Ca²⁺ channels are an important target for anti-seizure medications. We have developed several di-substituted N-aryl amide enaminone analogs and evaluated their ability to target T-type Ca²⁺ channels. In this work, we compared two di-substituted N-aryl amide enaminone analogs with methyl and fluorinated groups. MedChem Designer and ADMET Predictor 10.0 was used to design the N-aryl amide enaminone analogs. Whole cell recordings were performed to assess the effects of these analogs on voltage-activated Ca²⁺ currents in HEK-293 cells constitutively expressing the Cav3.2 channel subunit. Statistical analyses consisted of t-test for pairwise comparisons or one-way ANOVA followed by post hoc analysis using Tukey's honest significant difference test for comparisons between multiple groups. Using whole cell voltage-clamp recordings, we compared the effect of dimethylated (RHB-59) and difluorinated (RHB-56) N-aryl amide enaminones for possible inhibitory effect on T-type Ca²⁺ channels. We evaluated the effect of these analogs on the T-type Ca²⁺ currents generated by the Cav3.2 channel subunits. The RHB-56 analog evoked a significant inhibition of T-type Ca²⁺ currents in a concentration-dependent manner. The RHB-59 analog had no effect on T-type Ca²⁺ currents at concentrations of up to 50 μM. Further evidence will be provided about the mechanisms of action of RHB-56 on T-type Ca²⁺ channels. These findings suggest that the fluorinated substitutions have a far more significant blocking effect on T-type Ca²⁺ channels than the fully methylated enaminones.

PF2

Exploring Relationships Between Measures of Functional Mobility in Patients with Amyotrophic Lateral Sclerosis

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Amyotrophic Lateral Sclerosis (ALS) is progressive and fatal neurological disease. It causes a decline in functional mobility as the disease progresses. In persons with ALS (pALS), functional decline can be analyzed via objective measures including gait velocity (GV) and via subjective, self-reported measures such as the ALS Functional Rating Scale-Revised (ALSFRS-R) and its subscales. The Gross Motor Subscale (GMS) reflects pALS's self-reported function during 3 activities significant in physical therapy: 'Turning in bed', 'Walking', and 'Climbing stairs'. The purpose of this study was to describe the validity of the ALSFRS-R and given subcomponents, to determine the association between objective (GV) and subjective (GMS) measures in pALS, and to assess the association between GV and three time-based categories: Months since 1st signs/symptoms, Months since diagnosis, and Months since 1st visit to a multidisciplinary ALS clinic. Given ALS's progressive nature, many pALS have limited functional energy; this limits their ability to perform standard objective measures such as GV. The ALSFRS-R and its components are self-report measures requiring little functional energy. They are useful tools to help guide clinical decision making through the progression of ALS. Internal consistency was demonstrated through significant positive correlations between the ALSFRS-R, its GMS, and all three GMS components. We found a strong and significant association between GV and GMS. GV's correlation with the 3 time-based components was weak to very weak. Utilizing subscales specific to the desired function, such as physical therapists selecting the GMS, allows health care providers to compare patients with similar functional deficits. The GMS is a clinically underutilized measure that highlights tangible changes in function, requires low energy expenditure from pALS, and is useful in clinical decision making.

Poster Abstracts - Graduate

(Titles in Alphabetical Order)

PG1 An Exploration of Bryan Stevenson as the World's Most Prolific Servant Leader and his Impact on Prison Reform in the US: A Meta-Analysis Rhonda Singletary*,

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

Coined by Robert Greenleaf in 1970, servant leadership means serving first (Greenleaf, 1970). According to Parris and Peachey (2012), servant leadership theory's emphasis on service to others makes it a valuable theory for the 21st century. The United States has one of the highest prison populations in the world, disproportionately impacting poor people and people of color (Ng, 2022). Bryan Stevenson is an American lawyer who has devoted his career to serving the poor, condemned, and incarcerated (Toobin, 2016). The purpose of this meta-analysis was to identify evidence-based empirical literature to answer the following research questions: Research Question 1: Is Bryan Stevenson the most effective prison advocate? Research Question 2: Is Bryan Stevenson the most compelling servant leader of the 21st century? The results of the meta-analysis indicated that Stevenson is the most effective prison advocate. Stevenson has won exonerations of 135 innocent death row prisoners (Equal Justice, 2023). In 2012, Stevenson argued before the US Supreme Court, resulting in a ban on mandatory life-without-parole for children (Segura, 2012). Greenleaf's test of servant leadership is the effects on the least privileged in society (Greenleaf, 1970). In 2009, Stevenson was awarded the International Justice Prize for "tireless advocacy of human rights for individuals belonging to oppressed groups" (NYV Law, 2009).

PG2 An Investigation of the Relationship Between Spiritual Leadership (SL) and Ethical Behaviors (EB) in the Workplace,

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The delicate process of leadership can both create and destroy the foundations for success within an organization (Bass, 2008). Researchers and practitioners have established empirical evidence which suggests that transforming the behaviors within an organization begins with the behaviors, attitudes, and vision of the leader(s) as driven by their values. Consequently, researchers have sought a holistic approach to leadership that incorporates ethical actions, attitudes, and vision (Northouse, 2022). Spiritual leaders intrinsically motivate their followers to achieve a shared goal/vision by combining strategies rooted in altruistic love and hope/faith to impact their followers' hearts, minds, bodies, and spirits (Fry, 2003). Studies on spiritual leadership (SL) have explored its effects on desired organizational outcomes (organizational commitment, organizational citizenship behavior, and employee job satisfaction). Researchers have yielded mixed results about the direct impact of spiritual leadership on organizational citizenship behavior (Chen and Yang, 2011) and organizational commitment (Astakoni, Sapta, Rustiarini, & Kusuma, 2021). However, examining mediators, ranging from quality of work life to ethical climate/behaviors appears to have increased the impact of spiritual leadership on desired organizational outcomes (Göçen and Şen, 2021; Pio and Pio and Lenkong, 2021). Ethical behaviors are the actions taken because of morals and values which maintain an individual's sense of good and evil, right or wrong, and just or unjust (Pio et al., 2020). Such moral guidelines dictate individuals' choices, unblurring the lines of what the individual can and should do. To clarify the relationship between SL and EB, a meta-analysis was conducted guided by the following research questions: What is the influence of spiritual leadership on ethical behavior? Should spiritual leadership be implemented in the workplace. Thus, this study aims to analyze and conduct an extensive review of quantitative studies exploring SL and EB, to determine whether there is a direct relationship between spiritual leadership and ethical behavior in the workplace.

PG3 Antibiotic resistance and mecA characterization of *Staphylococcus hominis* from filarial lymphedema patients in the Ahanta West District, Ghana: A cross-sectional study

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Filarial infections affect over 150 million people in the tropics. One of the major forms of filarial pathologies is lymphedema; a condition where the immune response is significantly altered, resulting in changes in the normal flora. *Staphylococcus hominis*, a human skin commensal, can also be pathogenic in immunocompromised individuals. Therefore, there is the possibility that *S. hominis* could assume a different behavior in filarial lymphedema patients. To this end, we investigated the levels of antibiotic resistance and the extent of *mecA* gene carriage in *S. hominis* among individuals presenting with filarial lymphedema in rural Ghana. We recruited 160 individuals with stages I-VII lymphedema, in a cross-sectional study in the Ahanta West District of the Western Region of Ghana. Swabs from lymphedematous limb ulcers, pus, and cutaneous surfaces were cultured using standard culture-based techniques. The culture isolates were subjected to Matrix-Assisted Laser Desorption/Ionization Time of Flight (MALDI-TOF) mass spectrometry for bacterial identification. Antimicrobial susceptibility testing (AST) was performed using the Kirby-Bauer method. *mecA* genes were targeted by polymerase chain reaction for strains that were cefoxitin resistant. In all, 112 *S. hominis* were isolated. The AST results showed resistance to chloramphenicol (87.5%), tetracycline (83.3%) penicillin

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(Titles in Alphabetical Order)

(79.2%), and trimethoprim/sulphamethoxazole (45.8%). Of the 112 strains of *S. hominis*, 51 (45.5%) were resistant to ceftiofur, and 37 (72.5%) of the ceftiofur-resistant *S. hominis* harbored the *mecA* gene. This study indicates a heightened level of methicillin-resistant *S. hominis* isolated among filarial lymphedema patients. As a result, opportunistic infections *S. hominis* among the already burdened filarial lymphedema patients in rural Ghana may have reduced treatment success with antibiotics.

PG4 Application of Biochar for Soil Remediation and Shelf-Life Extension of Strawberries using Edible Film. **Aduteye Erasmus Kabu***, Naveen K Dixit, and Caleb Nindo

*Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Agricultural soils typically contain trace amounts of heavy metals, however, because of their toxic nature and cumulative behavior, they have the potential to negatively impact crops and human health. Vegetables are exposed to heavy metals in many countries and regions through various means and eating heavy metal-contaminated vegetables can have negative health consequences. Biochar has the potential to be developed into a workable technology and improve contaminated soils. The addition of biochar to agricultural soil has emerged as a viable strategy for lessening soil contamination and speeding up soil remediation, increasing crop productivity and soil fertility by increasing net soil surface area, which improves soil water retention and soil aeration. Although consumers prefer fresh fruits and vegetables free from any contaminants, food quality, and safety are now a global concern. This research aims to investigate the use of biochar as a soil amendment for strawberry production and the development of an edible coating to preserve the shelf life of strawberries. Strawberries have a very short shelf life and senescent period due to their high degree of perishability and infection caused by several pathogens that can rapidly reduce the fruit quality. Edible films and coatings have a promising possibility for extending shelf life and controlling the quality of tropical fruits, berries, and other fruits and vegetables by reducing weight loss, preventing color changes, texture, moisture, and controlling the respiration rate.

PG5 Aronia mitchurinii Extracts Encapsulated into Biocompatible Polymers for Antifouling Formulations Bases **Keith Bratley*¹**, Victoria V. Volkis¹, Breann V. Green¹, Travis Ford¹, Joseph Pitula, and William Weaver¹, ¹Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Biofouling is the adhesion and accumulation of bacteria and other marine microorganisms and their polymerized metabolites on a submerged surfaces like ships, buoys, and platforms. Biofouling presents major problems for the shipping industry and contributes to ecological changes by introducing invasive foreign species. Attempts to prevent biofouling have centuries of history, particularly those that employ specialized coatings to defend against biofilm formation. These coatings however, result in a negative impact on marine ecosystems. Tributyltin (TBT) and other biocides in antifouling paints are currently banned in many countries including the US, due to their high toxicity. Our plan is to develop formulations for antifouling coatings that are non-toxic and utilize organic renewable super-fruits, medicinal herbs, and non-biofilm forming algae. For antifouling compounds, their acute toxicity to larvae of a model macro-foulers, chronic toxicity, and degradation kinetics in the marine ecosystem will be investigated. Here we will present antifouling formulations created with extracts of *Aronia mitchurinii* super fruit. Phytochemical characterization, preparation of coatings, antifouling tests, post-test surface analysis, along with toxicity will be discussed.

PG6 Assessing Farmers' Perception of Climate Change and the Potential for Adaptation in Delaware, Maryland, and Virginia Peninsula.

E. K. Aduteye, S. L. Tubene, Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853.

Agriculture and food security are predicted to be impacted by global warming causing food prices to increase as well as a reduction in food production. The farm sector contributes to greenhouse gas emissions and the perception of farmers on climate change is extremely important. Studies on farmers' perception of climate change have been conducted in the United States, however, little has been done in Delaware, Maryland, and Virginia (Delmarva) Peninsula to address farmers' understanding of climate change and potential adaptation strategies. The objective of this study was to assess Delmarva farmers' perceptions of climate change and document appropriate and effective climate change adaptation strategies used by Delmarva farmers. A questionnaire was designed and used to collect data from the respondents. The result was analyzed and presented in tables and frequencies. More than half of the respondents believe climate change is occurring. Factors influencing farmers' perceptions of climate change were analyzed using a binary logit model. From the binary logit model,

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observation of changes in climate over the past 5 -10 years, age, level of education, and farmers who accepted adaptation strategies due to climate change positively influenced their perception of climate change while the size of farm and farmers who believe agriculture activities contribute to climate change have no significant influence on farmers' perception of climate change. The result showed that an increase in temperature, uneven rainfall distribution, and a high incidence of pests and diseases are the major threats to agriculture in the Delmarva Peninsula. Adaptation strategies currently used by Delmarva farmers include avoiding planting in the flooded areas of the farm, growing selective crops, practicing soil conservation techniques, and buying crop insurance.

PG7

Biosynthesis of Manzamine Class Alkaloids

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Manzamines represent structurally complex alkaloids mostly isolated from marine sponges from various locations. Attachment of beta-carboline to a pentacyclic diamine structure formed through the fusion of 5-, 6-, 8- and 13-membered rings are the unique structural feature of manzamine A. Structural alterations of pentacyclic rings are found in other manzamine derivatives. Given the broad range of biological activities of manzamines and their unique structural features, little is known concerning how these molecules are biosynthesized in the producer organisms. With an aim to uncover the genetic basis for the production of manzamine A, we completed the whole genome sequence of this alkaloid producer *Micromonospora* sp M.42. A thorough bioinformatic analysis of genome sequence and review of literature cumulatively resulted in the development of a hypothetical pathway for the biosynthesis of manzamine A. We here present the snapshot of the whole genome of *Micromonospora* sp M.42, secondary metabolite biosynthetic gene clusters identified through comparative genomic analysis and a biosynthetic model for the production of manzamine A. Validation of biosynthetic pathway through characterization of biosynthetic enzymes is currently underway.

PG8

Concussion Examination among Wheelchair Athletes

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Concussion is a national cause of injury among athletes in many sports. The purpose of this exploratory narrative review was to analyze the availability and clinometric support for outcomes measures used to examine balance and neurocognitive function among wheelchair athletes. Participants: 50 collegiate wheelchair athletes pooled from three studies.

A comprehensive literature search was conducted (time period 2000-2022) with the following data bases: PubMed, CINAHL, PEDro, the Cochrane Library, and the Ovid portal. Inclusion criteria mandated that studies examine a clinometric property in balance or neurocognitive tests with wheelchair athletes. Studies were labeled using the US Health Policy Scale tiers.

Following an initial sixteen studies reviewed, three studies were identified for final inclusion, analyzed, and labeled (US Health Care Policy Level 3-Descriptive Studies). The final observational studies identified preliminary clinometric support for two outcomes measures, the Wheelchair Error Scoring System (WESS) and the King Devick (KD) Test. The WESS Test, an adaptation of the Clinical Test for Sensory Interaction in Balance for wheelchair athletes, demonstrated test-retest reliability across a seven-day interval (.65-1) and ICC intertester reliability (.69-.86). Sample sizes were small (n=21). The King-Devick Test demonstrated good test-retest reliability (ICC = .826) among wheelchair basketball users, though displayed a learning effect among payers (n=29).

Limited clinometric support exists for tools available to wheelchair athletes that examine balance and neurocognitive function. Studies examining these measures have small sample sizes, adverse learning effects, and are limited to players that can perform the testing positions such as wheelies.

PG9

Effectiveness of Omega-3 Fatty Acids in Preventing and Treating Postpartum Depression

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Postpartum depression (PPD) is an emotionally debilitating condition affecting 1 in 7 women. Depressive symptoms such as feelings of sadness, worthlessness or guilt, thoughts of death or suicide, and fear of harming oneself or the child, typically occur within the first 4 weeks of the postpartum period. Conventional therapy for PPD includes SSRIs, TCAs, and psychosocial therapy. Omega-3 fatty acids, which must be obtained from food products, are important for brain development, hormone production, reducing inflammation, and preventing cardiovascular disease.

The therapeutic effects of Omega-3 fatty acids were analyzed in the treatment and prevention of women diagnosed with postpartum depression, compared to conventional therapies including antidepressants or placebo.

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A research review was conducted of Cochrane Library & PubMed. Terminology used to locate the studies utilized for analysis include "postpartum depression", "Omega-3 and postpartum depression", "postpartum depression", and "nutraceuticals". Specific articles were chosen based on inclusion and exclusion criteria relevant to the objective. Conclusions from the five selected articles were synthesized to form our results.

Omega-3 fatty acid supplementation was found to be effective in reducing mild to moderate depressive symptoms during the postpartum period. There was a medium to large effect in improvement of depressive symptoms in women taking Omega-3 fatty acids compared to placebo. Therefore, supplementation can effectively reduce depression both during pregnancy and postpartum depression.

The general consensus across the selected studies indicates improvement of both prevention and treatment of PPD with increased intake of Omega-3 FAs. Omega-3 fatty acids offer a more natural remedy to treating PPD which may increase patient compliance with treatment, especially if patients are reluctant to try antidepressants. However, for levels of severe depression, Omega-3 supplementation should not be used as monotherapy, but in conjunction with other interventions. Omega-3 FAs provide a safe alternative that can be recommended to new mothers struggling with mild to moderate postpartum depression.

PG10

Effectiveness of Probiotics in Weight Reduction among Adults with Obesity **Alejandria Meadows PA-S2*1; Holly Shaw PA-S2*1; and Khaled Hasan, MD, PhD1**

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Obesity is known to cause many preventable illnesses ranging from heart disease, diabetes, obstructive sleep apnea, hormone imbalance, infertility, and much more. Our study was aimed to show whether using probiotics alone was useful as a weight loss regimen and what strains of probiotics were more successful in weight loss. The use of probiotics in the treatment of obesity and weight loss without the side effects of medications or even surgery, would be an advantage to patients. We analyzed 3 systematic reviews and 3 randomized controlled trials that included 20–65-year-old males and females that were obese using databases that included PubMed, Medline, Cochrane Review. The patients were assessed before and after by measuring waist circumference, BMI, waist to hip ratio, body weight, body fat percentage as well as glucose, lipopolysaccharides, total cholesterol, and lipidemia as secondary results. Multiple different strains in the Lactobacillus and Bifidobacterium species were used alone or in combination with the other strains of the two probiotics. Results showed that probiotics were effective in reduction in weight, waist circumference, BMI, and body fat percentage and showed more reduction with a combination of probiotics. Multiple strains also proved to have the effect of reducing LDL-C, total cholesterol, and glucose while increasing HDL-C levels. While probiotics show a promise as a weight loss therapy, additional research needs to be done to show long term effects and healthy diets and exercise should still be encouraged.

PG11

Effects of COVID-19 Pandemic on Spirituality and Resilience in Health Professional Students **Besen Sanga PharmD Candidate*1, Rebekah Torchon PharmD Candidate1, Miriam Purnell PharmD1, Ranjani Varadarajan, MS, PhD2**

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The COVID-19 pandemic has caused unprecedented social and economic disruption, leading to exponential increases in stress among individuals, especially healthcare professionals, and students. Religion/spirituality has been shown to help people cope with illness, physical health, and response to treatment. This study examined the impact of the COVID-19 pandemic on the religion/spirituality and resilience of health professional students, defined as pharmacy, nurse practitioner, physical therapy, and physician assistant students, by examining these parameters before and during the pandemic.

This cross-sectional multi-center study occurred at Shenandoah University (SU) and the University of Maryland Eastern Shore (UMES). The study compared the religion/spirituality and resilience of graduate health professions students before versus during the COVID-19 pandemic. Religion/spirituality and resilience were assessed based on validated standardized numerical scales: Daily Spiritual Experience Scale (DSES) and Brief Resilience Scale (BRS). DSES is a sixteen-item self-report measure of an individual's connection with the transcendent in everyday life. It includes constructs such as awe, gratitude, mercy, deep inner peace, a sense of awareness related to discernment/inspiration, and compassionate love. Possible score ranges were 1-6, with 1 being never or rarely engaging with the transcendent and 6 being engaging with the transcendent many times a day or the individual experiencing a particular spiritual construct. BRS measures a person's ability to bounce back or recover after a stressful event. Possible ranges for BRS were 1-5, with 1 indicating the individuals strongly disagreed with the statement and 5 indicating they strongly agreed with it. Mean BRS scores were calculated for the 6-survey items and are interpreted as: 1.00 - 2.99 = low resilience, 3.00 - 4.00 = normal resilience, and 4.31 - 5.00 = high resilience. The DSES data were analyzed using pair-

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ed sample t-tests, and the BRS data were analyzed using Wilcoxon Signed Rank Test and non-parametric tests. A total of 107 health professional students from SU and UMES participated in the study; 91 completed responses were analyzed. Most students were between 20 and 24 years of age (50.55%). About 83.52% of the survey respondents identified as female, and 16.48% as male. Almost 80% of respondents were Caucasian, and 10% were African American. In addition, 70% of respondents stated their religious affiliation was Christian, 16% said they were religiously unaffiliated, and the remaining 14% identified as agnostic, atheist, Muslim, or Sikh. For the DSES, the mean score for all survey respondents before the pandemic was 3.8, and the mean score during the pandemic was 3.4, indicating a mean score difference of 0.4 with $p < 0.001$ (two-sided). For BRS, the mean score of all respondents before the pandemic was 3.05 and 3.07 during the pandemic, with $p = 0.525$ (two-sided).

PG12

Evaluating the Effect of Hemp Drying Methods on Cannabidiol (CBD) Content

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Industrial hemp (*Cannabis sativa* L.) is one of the oldest plants cultivated worldwide to produce fiber, fixed oil, and biomass. Production has grown from zero acres in 2013 to approximately 310,721 acres presently. The regulation stipulates that industrial hemp must contain less than 0.3% THC. Farmers experience a significant loss due to improper drying. Improper drying can also affect the important bioactive chemical compounds in hemp. With the development of technology, alternatives for better drying performance have emerged to improve the efficiency of the hemp industry. Cannabinoids (CBD) levels in hemp plants might be as a result of various stressors, such environmental conditions, insect predation, and drying methods. Research has shown that, the choice of drying method and parameters can result in harnessing different chemical and biological activity due to different content of chemical compounds in their composition. Earlier studies have shown that the selection of the drying method has a major influence on the content of volatile essential oils present in herbs. With the development of technology, alternatives for better drying performance have emerged, such as Non-isothermal, microwave-vacuum, electrohydrodynamic, radiofrequency, and freeze drying have been identified as potential candidates for industrial drying of cannabis. The experiment was conducted using hemp grown at the UMES Demonstration Farm using three varieties of hemp (Mountain Mango, Trump and Cherrywine) using five drying methods (1) freshly cut hemp (control), (2) freeze dry, (3) oven dry, (4) hang dry, and (5) darkroom dry with three replications per treatment. After drying, samples were weighed, submerged in methanol, vortexed, pipetted into vials and placed in a GC-FID machine. Results indicated that freeze dry hemp had higher cannabidiol (CBD) and lower tetrahydrocannabinol (THC) levels. It was concluded that Oven dry was the fastest drying method, however, freeze dry was more efficient and more favorable based on the public requirements.

PG13

Evaluation of Combination Therapy vs Monotherapy in the treatment of Alzheimer's Disease

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Alzheimer's Disease is a degenerative brain disease and the leading cause of dementia in adults over 65. The FDA has approved two classes of medication: cholinesterase inhibitors and non-competitive NMDA receptor antagonists. A literature review compared the efficacy of combination therapy and monotherapy in improving mental function.

To identify whether combination therapy of Donepezil and Memantine is more effective than monotherapy in improving mental function in patients with Alzheimer's Disease while considering other variables including acceptability, adverse effects, and cost-effectiveness.

The research evaluated 6 peer-reviewed articles that assessed the efficacy of treatments for moderate to severe Alzheimer's disease across several domains. The domains included: cognitive function, global assessment, daily activities, neuropsychiatric symptoms, behavioral and psychological symptoms, functional communication, and reduction of caregiver burden. The databases used were Cochrane Library and Frederick Douglass Library.

Combination therapy of memantine and donepezil was found to be more effective in improving Alzheimer's domains compared to monotherapy or placebo. However, it was also reported to have lower acceptability than monotherapy and placebo, with donepezil being the least well-tolerated. In terms of cost-effectiveness, the order from most to least expensive was combination therapy, donepezil, and memantine.

Combination therapy of donepezil and memantine was found to be effective in improving various domains of Alzheimer's disease. Adverse events, acceptability, and cost of treatment should be considered when prescribing medications for Alzheimer's disease. Comparing drug effectiveness can determine the choice of treatment with the greatest impact on the patient.

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PG14

Evaluation of Integrated Pest Management on Yield, Growth, and Development of *Amaranth viridis* Linn. Grown on the Delmarva Peninsula

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Around 1.5 million people live on the Delmarva Peninsula, and as the region's ethnic population increases so does the need to grow desired ethnic crops. *Amaranth viridis* Linn. (Amaranth), commonly referred to as Callaloo, is highly nutritious, drought tolerant, and require few inputs to grow. However, this crop is susceptible to pest damage, which hinders the crop's growth, development, and marketable yield. Integrated Pest Management (IPM) can be used to construct procedures to identify a successful pest control strategy. Preliminary studies 1) investigated the application of Plant Growth Promoting Rhizobacteria (PGPR) (T1: Control, T2: Strand 209, T3: Blend 5, T4: Blend 8) on yield, growth, and development of amaranth grown in a growth chamber and greenhouse, 2) evaluated the application of organic insecticides (spinosad and neem oil) on the yield, growth, and development of field-grown amaranth, and 3) evaluated the use of a trap crop (industrial hemp) on the yield, growth, and development of field-grown amaranth. Chlorophyll content, total and marketable yield, and biomass were analyzed weekly. The growth chamber PGPR study showed a significant difference in average fresh weight in T3: Blend 5 when compared to the other treatments. The insecticide study showed no significant difference in total and marketable yield. For the trap crop study, total yield and dry weight were significantly higher in weeks 4 and 5, and marketable yield was significantly higher in weeks 4 and 6 in the non-hemp crop field. Additional studies are needed to identify which pest control strategy is most effective.

PG15

In the General Population, is Obesity a Risk Factor for Mental Health? Correlating Obesity and Mental Health Amongst the Adolescent, Young Adults, and Elderly Populations

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This study focuses on the correlation between mental illness - specifically anxiety and depression, and obesity and the effects it has on a patient's life if left untreated. As there is limited published research in this area, additional research will be necessary to gain a full understanding of the relationship between obesity and mental health.

The objective of this research is to investigate whether there is an association between the obese population and mental health, specifically depression and anxiety, and to what extent. The obese population will be placed in various categories, including a full spectrum BMI, curated obesity subtypes, specific age groups, sex, and by ethnicity.

Various articles were used as data sources for this study, employing diverse research methods such as surveys and cross-sectional studies. A Korean article published in 2016 compared the mental health of adults across obesity subtypes using a survey. Another article examined the relationship between weight loss, mental health, and function in obese older adults using data from the MEASUR-UP trial. A cross-sectional study of the Scottish adult population in 2014 provided data on mental health and BMI across all categories. Finally, an article conducted cross-sectional surveys in 13 countries to compare obesity and mental health across different demographics, including gender and ethnicity.

The obese population showed a positive association with depression, mobility problems, pain/discomfort, stress, self-care and usual activity problems, and improper sleep duration compared to the normal weight population. Baseline depression symptoms predicted lower weight loss, while higher baseline sleep latency and anger predicted less improvement in physical function. Also, obesity was associated with a range of mood and anxiety disorders in the US population, with stronger associations in young adults and the elderly. Obese women had a higher prevalence of mental health issues than obese men.

Obesity is positively associated with mental health problems and decreased quality of life. There is a strong correlation between obesity and emotional disorders in obese women. Obesity is also linked to significant increases in lifetime diagnosis of major depression and a 25% increase in the odds of mood and anxiety disorders. Therefore, it is important to consider mental health and quality of life in any weight loss intervention or treatment plan for obese individuals of all ages.

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PG16

Is the Timed Up and Go a Reliable Test for Persons with Dementia?

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Background: Given the prevalence of persons with dementia in all clinical setting, there is a need for reliable measures to appropriately assess physical performance in this population. The Timed Up and Go (TUG) instrument is a common clinical test of functional mobility. Little is known about aggregate clinometric support for the test among persons with dementia. Objective: The purpose of this systematic review was to assess the reliability of the "Timed Up and Go" (TUG) test among persons with dementia. Design: The design of the study was a systematic review in accordance with PRISMA guidelines. Methods: A comprehensive literature search was conducted with the following data bases: PubMed, CINAHL, PEDro, the Cochrane Library, and the Ovid portal using a two-stage search process. An initial search used the terms "reliability" and "Timed Up and Go." A second search added combinations of the following the key words: "dementia, Alzheimer's and cognition." Inclusion criteria mandated that studies analyze a reliability metric for the TUG in persons with dementia. Studies were labeled using the US Health Care Policy (USHCP) Scale tiers. Results: The final results included eleven studies, with an additional 34 not meeting inclusion criteria. All were identified at the USHCP level three tier. Test-retest (ICC=0.72-0.99), and both intrarater and inter-rater reliability (> .95) were generally good to excellent in pooled studies. Conclusions: The TUG outcomes measure demonstrates appropriate reliability for persons with dementia. Most ICC metrics reflected acceptable reliability coefficients > .90 in clinometric testing and demonstrated measurement stability over time.

PG17

Metabolite Footprint-Guided Discovery of Microbial Bioactive Natural Products

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Actinomycetes are prolific bioactive natural product producers. Over 80% of the currently used antibiotics are produced by actinomycetes or derived from actinomycetes metabolites. In recent years, bio-assay-guided discovery efforts are recently hindered by repeated isolation of known metabolites. In this study, we utilized a combination of unique metabolite signatures and biological activities to identify novel/new bioactive metabolite producer actinomycetes. As a pilot study, we have examined soil samples collected from the Harpers-Ferry hiking trail located in the Appalachian mountain. Over three dozen actinomycete strains have been isolated, eight of which produced unique/new metabolites based on examination for a match of high-resolution MS data of metabolites using the database AntiBase. We herein report Broad spectrum activities displayed by select culture extracts. Scale-up fermentation and follow-up isolation work to identify structure and access structural novelty are underway.

PG18

Myotonic Dystrophy in Physical Therapy: Know It, See It, Recognize It

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Myotonic Dystrophy, known as DM, is a chronic multisystemic genetic condition that has progressive, disabling, and life-threatening symptoms. There are two types of Myotonic Dystrophy, DM1 and DM2; adult-onset DM1 was the focus of this project. A Board-approved continuing education course "Myotonic Dystrophy in Physical Therapy: Know It, See It, Recognize It," was presented in August 2022, to provide actionable information to Physical Therapists and Physical Therapist Assistants on evidence-based screening tools, symptom recognition, and resources to help patients with this condition. It included a video, which is now available with free, open access. This course was created due to the average 7-year diagnostic delay and significant gap of appropriate care for these patients due to the lack of knowledge amongst healthcare providers. Ten participants attended the CEU course however, only three participated in our IRB-approved research. Due to this small sample size, data was not statistically significant; however, it is important to note that all research participants reported improved awareness, knowledge, and confidence regarding myotonic dystrophy post-course. Future studies would require a larger sample size to obtain statistically significant data to support the increasing confidence of clinicians with recognition of DM1 symptoms. Overall, the purpose of our project was to increase awareness of DM1 and to provide appropriate resources for Physical Therapists and Physical Therapist Assistants regarding DM1.

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PG19 Occurrence and Pathogenic Potential of Shewanella Species Found in Oysters and Seawater from The Chesapeake And Maryland Coastal Bay

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Shewanella species are flesh-eating and food spoilage bacteria that can be transmitted through contaminated water and seafood. Immunocompromised individuals are at greater risk of infection if raw or lightly cooked oysters are consumed, or if cuts in the skin have been exposed to contaminated marine environments. Adequate information is not available on the abundances of these bacteria in oysters (*Crassostrea virginica*) and seawater from the Chesapeake and Maryland Coastal Bays. This study evaluated the abundances of *Shewanella* species in oysters and seawater from the Chesapeake and Maryland Coastal Bays at four sites between 2019 and 2021. Total *Shewanella* counts were as high as CFU/g in oyster and CFU/mL in water obtained on iron agar plates incubated at 35°C. 16S rRNA sequencing was performed on 1,526 representative isolates of which 1,028 (825 oyster, 203 water) were confirmed as *Shewanella* within 15 different species. Testing for alpha and beta hemolysis was performed on sheep's blood agar for all confirmed *Shewanella* isolates. Forty-four percent of strains were beta-hemolytic suggesting that these could be potentially pathogenic to humans. The top four species isolated from oyster and water samples were 477 *S. amazonensis*, 202 *S. marisflavi*, 113 *S. lohica*, and 87 *S. algae*. Beta hemolytic strains were isolated from oysters (41%) more than seawater. Correlations were performed between physicochemical attributes of the seawater and *Shewanella* counts from the four collection sites. A weak correlation was observed between seawater temperature and *Shewanella* counts in seawater ($r = 0.45$), while a negative correlation was observed between dissolved oxygen levels in the seawater and *Shewanella* counts ($r = -0.48$). There was no correlation between seawater parameters and *Shewanella* counts in oysters. Results from this study suggest that virulent strains of *Shewanella* may be present in oysters and seawater from the Chesapeake and the Maryland Coastal Bays. This is the first comprehensive study that provides insights into the diversity and pathogenic potential of different *Shewanella* species recovered from oysters and seawater from two Bays.

PG20 Patients with Rectogenital Chlamydia Trachomatis: Is Doxycycline a Better Treatment than Azithromycin?

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In 2021, the CDC changed its recommended guideline for treating *Chlamydia Trachomatis* to a 7-day course of doxycycline 100 mg twice daily. For years prior, one dose of Azithromycin 1 g was the recommended treatment. An investigation was carried out to examine the superiority of one antibiotic over the other in treating *Chlamydia Trachomatis* among high-risk patients.

To determine which medication is the better treatment for *Chlamydia Trachomatis* among high-risk patients when considering patient-specific factors such as drug efficacy, side effects, and compliance.

The studies considered for this research were all peer-reviewed and subjected to critical appraisal. Articles chosen for this research were published between 2015 and 2022 – four randomized controlled trials and one retrospective cohort study. One article published in 1999 was included for discussion purposes about patient compliance with Doxycycline therapy against *C. Trachomatis*. Participants in the studies include youth 15-24 years of age, sexually active women, and Men who have sex with men (MSM). The independent variable considered in all studies involved the use of Doxycycline 100 mg BID for seven days vs. one dose of Azithromycin 1 g, while the dependent variable measured the resolution of infection.

Doxycycline demonstrated superior efficacy with the lowest cure rate at 91% (compared to 71% for Azithromycin). Side effects observed in the studies included gastrointestinal disturbances such as nausea, vomiting, and diarrhea. 3 of 4 studies reported higher incidences of GI adverse effects with Azithromycin usage. Both compliances with treatment and cost-basis analysis were not discussed in detail in the reviewed studies. However, one study illustrates that Doxycycline demonstrated high therapeutic success rates despite poor compliance.

The updated CDC guideline of treating *C. trachomatis* with doxycycline as first-line and azithromycin as an alternative is appropriate with regard to efficacy. However, more studies examining patient compliance to a 7-day supply of Doxycycline are needed to determine the significance of completing therapy as prescribed to the drug's effectiveness against *C. Trachomatis*. This is essential for clinicians to make informed decisions about which medication (Azithromycin vs. Doxycycline) is best to prescribe to the non-compliant patient.

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PG21

Precipitation and Temperature Influence Survival and Transfer of Escherichia coli to Fresh Produce in Manure-Amended Certified Organic Soils in Maryland

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Manure enhances soil health/crop productivity, but harbors pathogens that may contaminate produce and result in illness. Environmental factors (precipitation, drought, temperature) influence pathogen survival. Impacts of climatic events on pathogen survival during the 90-120-day National Organic Program (NOP) manure-to-harvest wait-period for fresh produce remains unclear. A randomized complete block inoculated challenge study was conducted on Delmarva NOP-certified plots in 2017-2018 to evaluate precipitation, soil moisture, and raw manure (poultry (PL), horse, dairy (DM)) effects on survival of generic *E. coli* (EC) and subsequent transfer to tomato fruits, radish bulbs, and spinach leaves at 90-120(-180)-days post-inoculation. Soil/environmental factors were measured relative to *E. coli* populations. Results showed all plots, including unamended controls, were 100% positive for EC (mean=5.85 logMPN/g) post-inoculation. Temperature, growing degree-days (GDD), and rainfall during 120-day spinach and radish trials in 2017 and 2018 were distinctive. Mean temperature was 8°C higher in 2018 than in 2017. Total precipitation was significantly ($p<0.5$) greater during 2018 (~56cm) than in 2017 (~26cm). In 2018, GDD=3254 was nearly twice that in 2017, GDD=1954. In 2017 radish soil, EC declined to 0-18% for all treatments by 90 and 120-days, yet all 240 bulbs assayed were EC positive in manured plots. In 2018, by 120-day, 8 of 12 radish plots (5 bulbs/PL or DM plot) were EC positive. In 2017 and 2018, only 2 of 12 manured plots were EC positive in 90-day tomato soils; by 120-days 30-40% were positive in DM and PL 2017, respectively. In 2018, EC declined to 10-20% by 90 and 120-days with no transfer to tomato fruits. The EC in soil varied substantially during the 2017 spinach season, with all harvested leaves EC positive. This study indicates weather events, manure, and crop type influence EC survival in manured soil and transfer to edible crops. Use of wait-time intervals alone without accounting for environmental events in crop fields requires further evaluation to develop robust practices to reduce the likelihood of pathogen contamination of raw fresh produce.

PG22

Presence of Foodborne Pathogens in Pre- and Post-Harvest Integrated Crop-Livestock Farm Environments and Fresh Produce on the Eastern Shore of Maryland

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Integrated crop-livestock farm (ICLF) systems, for sustainable, organic food production, are increasingly popular. However concerns remain about contamination risks from pathogens associated with on-farm animal reservoirs, their proximity to crop fields, and use of biological soil amendments (BSAs).

This study assessed the bacterial quality of three ICLFs and compared them to similar samples obtained from two crop-only farms (COFs) and three farmers-markets (FMs). A total of 990 samples were collected and analyzed using standard methods. Composite soil samples were evaluated before and after BSA application, every thirty days, and at produce harvest. Animal reservoirs were evaluated every 30 days, while untreated produce was examined at harvest or when available at FMs. All samples were analyzed for mesophilic aerobic bacterial (MAB), *Escherichia coli* (*E. coli*), *Salmonella*, and *Listeria monocytogenes* (*Lm*). Presumptive *Salmonella* and *Lm* were each confirmed using BAX PCR and PCR (*hlyA* gene), respectively. Results indicated incorporation of BSAs enhanced ICLF-soil health, but also significantly increased MAB and *E. coli* populations. Furthermore, *LM* and *Salmonella* were detected in soil samples after BSA application. At harvest, COF-soils had significantly ($p<0.05$) higher MAB populations than ICLF-soils, but 22.4% of ICLF-soils were positive for *E. coli* compared to 8.9% of COF-soils. FMs-produce had significantly ($p<0.05$) less MAB than corresponding ICLF- and COF-produce, but also tested positive for *E. coli*. *Salmonella* was absent on all produce samples, but present in COF-soil (2.2%), ICLF-soil (2.60%), and animal pen (3.85%) samples. *Lm* was detected in ICLF-soils (3.75%), animal-pens (0.96%), and one ICLF-squash and one FM-kale sample. Presence of fecal indicator *E. coli* and pathogenic organisms indicates contamination risks in pre- and postharvest ICLF and COF environments and FM produce. Further research is needed to evaluate survival/transmission mechanics of foodborne pathogens in ICLF and COF farm and retail environments, and mitigation practices.

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PG23

Salmonella Prevalence and Antibiotic Susceptibility in Organic and Non-organic Chickens on the Eastern Shore of Maryland, USA

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²U.S. Food and Drug Administration, College Park, MD, 20740, USA.

Salmonella infections related to chicken products have been intensely increasing worldwide and becoming a universal public health crisis. This study aimed to determine the prevalence of Salmonella in organic and non-organic chickens and investigate antimicrobial resistance profiles. Whole broiler carcasses organic (n=20) and non-organic (n=20) were obtained monthly for one year (n=480) from a retail store on the Eastern Shore of Maryland. Each carcass was mixed with 500 mL of buffered peptone water and incubated at 37 °C for 24 h. Salmonella isolation and identification were conducted by following the whole carcass enrichment method recommended by USDA-FSIS. Two hundred thirteen confirmed Salmonella isolates (organic n=76; non-organic n=137) were serotyped and tested for antibiotic susceptibility using standard methods. Forty-nine percent of the carcasses were positive for Salmonella. Organic and non-organic positivity rates were 37.1% and 61.7%, respectively. There was no significant difference in the prevalence of Salmonella between organic and non-organic chickens (p>0.05). The most common serotypes were Salmonella Kentucky (47%), Infantis (35%), Enteritidis (6%), Typhimurium (5%), and Blockley (4%). Enteritidis was associated only with non-organic chicken while Blockley was recovered only from organic chicken. Typhimurium was more prevalent in organic chicken (10.53%) than in non-organic chicken (2.19%). Ninety-one percent and 45.5% of the isolates were resistant to at least one antibiotic and multidrug-resistant, respectively. Resistance was often observed to tetracycline (82.8%), minocycline (42.3%), nitrofurantoin (40.3%), cefazolin (38.3%), and ampicillin (32.1%). Resistant to ceftriaxone in organic and non-organic chicken was 31.6% and 24.1%. All isolates were susceptible to antibiotic classes of fluoroquinolone, carbapenem, and glycolcycline regardless of the type of chicken. The results of this study demonstrate a high prevalence of Salmonella contamination in organic and non-organic chickens and a significant number of these isolates were resistant to commonly used antibiotics.

PG24

Staying ALERT About Osteoporosis: The Development and Appraisal of an Infographic by Students and Physical Therapists

Samantha Abernethy*, Alexander Neal*, Dr. Cindy H. Gill

Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Increasing awareness of the high incidence of osteoporosis (OP) and failure of the healthcare system to screen, diagnose and treat the disease is of the utmost importance. Infographics (InfoG) can play a part in assisting health care providers with the necessary information. The aim was to develop an InfoG to increase the likelihood that physical therapists (PTs) will screen and initiate a proper plan of care for patients with OP. Email recruitment of 87 student PTs (SPTs) and 365 PTs was performed. Each received a survey about their opinions on the InfoG's aesthetics, content, and benefit. Return rates: SPTs 89.7% and PTs 21.4%. The groups were combined for items yielding similar results. Aesthetics: 95% agreed(A)/strongly agreed (SA) InfoG was appealing; 96% A/SA the acronym was easy to follow and remember. Content: 97% felt enough data was provided; 98% felt major risk factors were identified; and 92% felt adequate evaluation information was provided; 72% felt enough referral information was provided, and 46% felt enough treatment information was provided. Benefit: 96.2% SPTs and 82.1% PTs reported InfoG would affect their future practice; and 94.8% of SPTs reported willingness to display the InfoG in the future compared to 75.6% of PTs. Majority of SPTs and PTs found the infographic aesthetically pleasing, however, revisions can be made to improve referral and treatment information. Further study is needed to determine factors that impact the PTs' opinions regarding utility of the InfoG.

PG25

The Ability of Entry-Level Physical Therapists to Utilize Musculoskeletal Ultrasound Imaging: A Reliability Study

Patrick Engle*, Jaye Newby*, Caroline Wagner*, Dr. Cindy H. Gill

Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Musculoskeletal Ultrasonography Imaging (MSKUSI) has the potential to be the preferred or ideal modality for physical therapists to evaluate the integrity and condition of musculoskeletal structures. Reliability of three Doctor of Physical Therapy students' (DPTS) utilizing MSKUSI to measure gluteus minimus tendon thickness (GMTT) was investigated. Twelve (5 males, 7 females) subjects volunteered (21-33 years old). The inclusion criteria: lower limbs free of surgery, chronic disease and injury and body composition for optimal visibility. DPTS received formal instruction in MSKUSI and practiced methodology for 40 hours. Subjects' hips were placed in a standardized position while three long-axis USI were obtained of GMT using the BioSound Esaote myLAB Sigma US unit and LA 4-15 MHz transducer. Each DPTS obtained USI bilaterally of GMT at separate times to avoid bias. GMTT (mm) measurements were performed later by each DPTS independently. Intra-class correlations (ICCs) were performed to determine inter- and intra-rater reliability. ICCs results were the following: significant Intra-rater reliability ranged from 0.824 to

Poster Abstracts - Graduate

(Titles in Alphabetical Order)

0.933 and significant inter-rater reliability ranged from 0.66 (PE and CW, moderate) to 0.722 (high, PE and JN). Following MSK US education, training, and practice, DPTS' achieved significant robust reliability coefficients with high to very high intra-rater reliability and moderate to high inter-rater reliability. MSKUSI presents multiple opportunities for variability: transducer placement and image analysis when determining GMIT. MSKUS can be reliably used by DPTS and can be considered an entry-level skill.

PG26

The Effects of Fish Oil Supplementation on Arterial Stiffness and Cognitive Function in Healthy Adults: A Pilot Study.

**Brandon M. Alina^{1*}, Ashley M. Foltz^{1*}, Madi A. Oberbreckling^{1*}, Erin A. Smith^{1*}, Jabari J. Wilbon^{1*},
Veronica M. Yevsukov^{1*}**, and Thomas K. Pellinger¹, PhD, ACSM CEP & EP-C; NSCA CSCS

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Elevated aortic and carotid artery stiffness are associated with subclinical brain damage and cognitive impairment. Fish oil (FO) is a popular dietary supplement that lowers blood pressure and aortic stiffness. However, the hypothesis that FO supplementation reduces carotid artery stiffness and improves cognitive function in healthy adults requires further investigation. Our objective was to determine the effects of FO supplementation on arterial stiffness and cognitive function in healthy adults. We hypothesized that 6-weeks of FO supplementation would lower arterial stiffness and improve cognitive function.

25 healthy adults were enrolled in a randomized, double-blind, placebo-controlled, parallel-arms intervention to investigate the effects of 6-week FO supplementation (4g/day) on vascular and cognitive function. Aortic stiffness was measured using applanation tonometry and quantified as carotid-femoral pulse wave velocity (cfPWV) and beta-stiffness index (bstiff), and carotid artery stiffness was determined using ultrasonography. Cognitive function was assessed using NIH toolbox cognitive battery. A two-way analysis of variance was used to test differences in treatment groups over time.

The mean (\pm SD) baseline age, body mass index, systolic, and diastolic blood pressure was 40.4 ± 20.6 years, 23.7 ± 2.4 kg/m², 120.9 ± 14.7 mmHg, and 74.9 ± 12.4 mmHg in the fish oil group and 33.3 ± 14.5 years, 25.3 ± 3.9 kg/m², 120.8 ± 6.4 mmHg, and 71.9 ± 7.8 mmHg in the placebo group, respectively. Compared to the national averages, our participants scored slightly above average (within one standard deviation) on all tests within the NIH cognitive battery. Within-group comparison revealed no differences in central or peripheral blood pressure, aortic or carotid stiffness, and cognitive function after fish oil supplementation (all $p > 0.05$).

Our preliminary data suggest that in healthy, cognitively normal adults, 6-weeks of FO supplementation does not impact indices of arterial stiffness or cognitive function. Further investigation with more participants and of longer duration is needed to confirm our findings regarding the effects of fish oil supplementation on carotid artery stiffness and cognitive function.

PG27

The Effects of Nutritionally Enhanced Corn Dried, Distillers Grains with Solubles Prepared by Alkali Hydrolysis as an Antimicrobial Alternatives on Growth Performance and Meat Quality of Broilers.

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A major cause of antimicrobial resistance is the misuse of antimicrobial growth promoters (AGPs) in animal production. Phenolic acids, phytochemicals that are considered promising AGP alternatives, are considerably rich in corn dried distiller grain (DDGS) but have extremely low bioavailability. In the previous study, nutritionally enhanced corn dried distiller grains with solubles (NE-DDGS) prepared by alkali hydrolysis were developed to enrich bioavailable phenolic acids. This study aimed to determine the potential of alkali hydrolyzed NE-DDGS as the economically viable alternative to AGPs in broiler production. Broiler male chicks were raised for 42 days with corn/soybean meal diets blended with alkali hydrolyzed NE-DDGS (6%) with Ca(OH)₂ at 3 concentrations 0.375, 0.45, and 0.525 mol/kg WDG (wet distillers grains). Negative and Positive Control diets included commercial DDGS (6%) with or without AGP (Bacitracin methylene disalicylate 50, 500 g/tonne of feed), respectively. Growth performance, breast meat quality, and oxidative stress of broilers were determined. Breast meat from NE-DDGS-fed broilers indicated higher oxidative stability compared to controls ($P < 0.05$), probably due to a higher concentration of bioavailable phenolic acids. Breast meat from NE-DDGS-fed broilers also showed higher functional properties, including water holding capacity and moisture uptake, compared to controls ($P < 0.05$), likely due to lower protein oxidation and denaturation. Other meat quality parameters such as textural properties of breast meat from NE-DDGS-fed broilers were not different from controls. These results suggested that alkali hydrolyzed NE-DDGS, rich in bioavailable phenolic acids, has economically feasible potential as an AGP alternative to maintain/improve broiler health, productivity, and meat quality.

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(Titles in Alphabetical Order)

PG28

The Effects of Thermo-Cooling during Competitive Rugby Performance on Wheelchair Athlete Players with Spinal Cord Injury

Gammons, A*, Snyder, S.*, and Klima, D1

Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD, Princess Anne, MD 21853

Wheelchair Rugby is an emerging popular adaptive sport for individuals with spinal cord injury who face a variety of cardiovascular impairments, including thermoregulatory dysfunction. Recent implementation of pre-cooling strategies and heat assimilation protocols that improve performance and decrease thermal strain are being explored. The aim of this focused critically appraised topic was to examine the effect of thermoregulatory interventions on athletic performance in persons with spinal cord injury. Thermoregulatory techniques were defined as any intervention that delays the rise of internal core temperature or improve heat tolerance with increasing intensity or duration of competitive play. A comprehensive literature search was conducted over the past ten years with the following databases: PubMed, CINAHL, PEDro, and the Ovid portal. Studies were rated using Sackett's Level of Evidence. Three studies met the inclusion and exclusion criteria and were included within the critically appraised topic. Two of the studies described that various methods of pre-cooling techniques can reduce overall thermal strain during play whereas the third study suggested heat acclimatization protocols may improve cardiovascular function. The use of thermoregulatory interventions prior to competition or intermittently throughout matches may be effective in decreasing thermal strain and improving athletic performance by delaying the rise of core temperature during play. The clinical application/strength of recommendation is derived from consistent findings from two designs (1 field-based, 1 cross-over) and a quasi-experimental study depict Sackett's Level 2b evidence. Findings support the use of thermoregulatory interventions for increasing athletic performance and managing thermal strain during competition.

PG29

The Intersectionality of Environmental Conflict and Disability in Maryland, Other States, and Abroad **Abstract**

Jake M. Goodman*

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In many parts of the world that have been severely impacted by the effects of environmental conflict there unfortunately is often a disturbing trend that natural disasters, manmade disasters, and pollution tend to hurt marginalized communities the most. More specifically individuals with disabilities are at a greater risk to the effects of natural disasters, manmade disasters, and pollution when living in low income areas near sources of pollution such as factories and incinerators. Here I will show examples of how this dynamic plays out locally within Maryland, on the domestic level in other parts of the United States, and on the international level in other parts of the world. The purpose of this is to educate policy makers and the public on how to better address environmental concerns and prevent the harmful impacts pollution has on individuals with disabilities. It is also meant to educate local governments how to better prepare individuals with disabilities for natural disasters, while at the same time making evacuation and rescue procedures more accessible.

PG30

The Pharmacist-Provided Telehealth Services and Outcomes: A Scoping Review **Brittney Henry, PharmD candidate*** and Hoai-An Truong, PharmD, MPH, FAPhA, FNAP

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The use of telehealth has been accelerated by recent advancements in technology and the COVID-19 pandemic. This innovative approach involving pharmacists providing virtual health visits from a remote location, has slowly been gaining traction for some time, however the pandemic placed a demand on its use. This sudden transition resulted in a lack of readiness tools and training for healthcare professionals. In response, a team of researchers conducted a scoping review to explore the readiness of pharmacists to provide telehealth services. The focus was to identify and analyze available and published literature on telehealth services and outcomes including humanistic, economic, and clinical impact. During March 2023, a thorough literature search was done using various search engines and key terms resulting in the comparison of fifteen peer-reviewed articles. Search terms included: telehealth, telemedicine, COVID-19, insurance, virtual medicine, remote healthcare. Search engines used included PubMed, Google Scholar, Medscape, and the National Library of Medicine. All fifteen articles showed the benefits of telehealth, and four studies show documented improvement in clinical outcomes. Five studies reveal the economic benefits and explore how third-party payors are covering the costs associated with telemedicine saving patients money. Telehealth has also shown to likely offer humanistic benefits, such as improving health disparities, increasing accessibility to care for patients with disabilities, and underserved communities. Based on current available literature, it appears that telehealth services offered by pharmacists are a positive addition to the healthcare system in managing chronic conditions, providing alternative access to treatment, and improving patient health outcomes.

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(Titles in Alphabetical Order)

PU1

Evaluating the Effects of Methyl benzoate and its Derivatives on Spotted Wing Drosophila

Kimberly Okpah^{1*}, Tigist Tolosa¹, Simon Zebelo^{1,2}, Aijun Zhang³

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²Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853.

³Invasive Insect Biocontrol and Behavior Laboratory, Beltsville Agricultural Research Center-West, USDA-ARS, Beltsville, MD 20705

Spotted wing drosophila (SWD), *Drosophila suzukii* Matsumura, has become a major challenge to berry growers in most countries. Controlling SWD using chemical insecticides is neither fully effective nor environmentally safe. Therefore, there is a need to develop an alternative pest control to synthetic insecticides. In this study, we evaluated the toxicity of methyl benzoate (MB), a volatile organic compound that exists naturally as a floral fragrance in many plants, and its derivatives on adult SWD under laboratory conditions. The fumigation toxicity experiment was set in 11250mL Erlenmeyer flasks, with 10 SWD sets per flask. Each chemical was prepared at five different concentrations and acetone was the control. After 24hr exposure, a high mortality rate was recorded for methyl benzoate (MD), ethyl benzoate (EB), and n-Propyl benzoate (nPrB) at concentrations of 23% and 30%. Similarly, toxicity against SWD was recorded on (LC50 = 17.4% MB, 24.1% EB, and 62.4 nPrB). However, the compounds benzyl benzoate (BB), n-Pentyl benzoate (nPeB), and other derivatives tested in this experiment did not show a significant difference between the different concentrations. Our preliminary laboratory study provided insight that using MB, naturally occurring VOCs is the best alternative for SWD control. Further fumigation toxicity experiments need to be done with different concentrations to substantiate the obtained results.

PU2

Examining Homelessness in the United States

Kenessa Dieshields^{*1} and Billie Brocato¹

¹Department of Social Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

This project examines homelessness in the United States and associated factors contributing to the marginalization of those without shelter, including families, the chronically unhoused and military veterans. There were 580,466 homeless people in the country in 2020, both on the streets and in shelters. Seventy percent were single people, while the remaining twenty percent were members of households with kids. Every gender, race, and ethnicity were represented, and they lived in every state and territory. My research describes and investigates the contributing factors leading to short-term and chronic homelessness. Generally, the data demonstrated that average rent and the cost of living were positively correlated with homelessness. Homelessness is inversely correlated with income since it declines as income increases. One of the purposes of this research is to identify future trends in homelessness by using the ordinary least-squares (OLS) regression model. Additionally, I will identify, describe, and compare those factors that could selectively determine homelessness for individuals, families, and military veterans. The data showed that homelessness in families with children decreased by 27 percent between 2007 and 2020 but moved higher in 2016; chronic individual homelessness dropped by 35 percent since 2007. Also, veteran homelessness decreased 47 percent since its peak in 2009. The findings demonstrated that each group studied experienced homelessness in different ways. Short-term individual homelessness and the chronic homeless population shows an upward trend, but homelessness decreased for families and military veterans. The result of my project showed that homelessness is a complex issue affecting demographic groups differently and will continue in the future if not addressed.

PU3

Phytochemical Development Over the Ripening Process of *Aronia mitschurinii*, *Sambucus nigra*, *Morus Alba* and *Lonicera caerulea*

Ezra Cable^{*1}, Breann Green¹, Deborah G. Sauder¹, Andrew G. Ristvey^{2*}, Victoria Volkis¹

¹Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

²University of Maryland Extension, Wye Research & Education Center, P.O. Box 169, Queenstown, MD 21658

A high demand for super fruit and nutraceuticals derived from these fruits has appeared in the market to address the need for products with high antioxidant contents. *Aronia mitschurinii* is a fruit which can satisfy this demand as it has one of highest known antioxidants content and low sugars. Research has been completed since 2006 studying the cultural management of aronia and antioxidant content per harvest, however in-depth phytochemical analysis over the ripening period has yet to be performed. The need for in-depth study of ripening arises from preliminary data for aronia that clearly shows peaks for both anthocyanins and soluble sugars, yet these two peaks may be up to 2-3 weeks apart, while the visual color of the berries is the same. It is important to harvest on the peak of anthocyanins for pharmaceutical needs, while for food production the harvesting should happen on the peak of brix. This project has two fundamental goals: (1) observe the ripening of aronia and find both laboratory and in-field methods to determine the optimal harvesting time; and (2) compare the data for four berries with almost same (and much higher than other known fruits) content of anthocyanins, to determine if they have the same or different ripeness patterns. The results for total content of anthocyanins, flavonoids, polyphenols, and brix over the ripening period for aronia, elderberries, mulberries and haskaps is presented, along with phytochemical screening of juice from the berries.

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(Titles in Alphabetical Order)

PU4

Prevalence of Intestinal Parasites from Canadian Geese (*Branta canadensis*) on UMES Campus

Yeganeh Mansourian, **Jaweria Sheikh*¹**, and Mobolaji Okulate¹

¹University of Maryland Eastern Shore, Princess Anne, MD, 21853

The accurate detection of the prevalence and intensity of gastrointestinal parasite infections is key to understanding the effect of parasites on the biology, behavior, and the conservation of hosts. Infections caused by gastrointestinal parasites in geese and other birds, usually bring clinical signs of diarrhea, dysentery, and in some cases, death. Gastrointestinal helminths can cause severe lesions that may affect the health and even the survival of their hosts. The current study aimed to investigate the prevalence of intestinal parasites and bacteria from the Canadian geese (*Branta canadensis*) on UMES campus. A total of 50 fecal samples were collected. Different kinds of cysts, eggs and helminths were found.

PU5

The Miseducation of Pit Bulls in America

Kaleigh Powell*¹ and Billie Brocato¹

¹ Department of Social Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Despite domestication and loyalty, human fatalities caused by dog bites remain a persistent issue in the United States. My research compares three-large, dog breeds and associated human fatalities with a focus on explaining negative public perceptions of the American Pit Bull. Additionally, I examined the number of dog bites reported in the five Boroughs of New York City from 2015 to 2020 by breed and size to better identify breeds with aggressive behaviors. An analysis of the annual percentage change of dog bites by breed for the above years was completed. Two-sample difference of means hypothesis tests were used to identify which of the three breeds had a significant number of human fatalities. The findings demonstrated that Pit Bull-related human fatalities were NOT significantly higher than Rottweilers (t-test = 1.15; $p < 0.867$). However, Pit Bulls had a significantly higher number of dog bite fatalities compared to German Shepherds (t-test = 3.88; $p < 0.0001$). Additionally, Rottweilers did NOT have a significantly greater number of dog bite-caused human fatalities compared to German Shepherds (t-test = 1.50; $p < 0.93$). Regarding reported dog bites, Pit Bulls had the highest number of recorded incidents followed by small breeds (Terriers); medium-sized breeds (Retrievers) had the fewest dog bite reports. Female dog bites exceeded their male counterparts in each size and breed. It may be respectively assumed that small breeds may not have a 'known' title as aggressive due to a significant disparity in reported mauling.

PU6

The Negative Impacts that Violence has on Both Human Health and Safety.

Sean Thompson*¹ and Billie Brocato¹

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My research will accomplish explanatory data that will conduct the understanding of violence. The method of data collection I used was the ordinary least squares regression analysis, which will demonstrate that violent crime will remain at current peak levels. This integrative review of the literature synthesizes findings of previous research studies about the impact of crime between Baltimore city and the United States. Additionally, the environment influences crime, the things that contribute to crime, and unemployment levels in Maryland, Baltimore, and the United States. My analysis demonstrates that violent crime throughout the upcoming years will either stay the same, or they will change. I mention this in my hypothesis section as well, my studies will conduct at the nation, state, and local levels of which crimes are committed the most. In my studies, I have data research from robbery, assault, rape, homicide, and overall, all violent crime. In summary, the impression of violence going on in communities continue to not change, violence against victims has been recognized as a significant issue in modern society, with long-term effects on their physical, social, emotional, and economic. Well-being as well as those of their racial/ethnic, class, religious, regional, and age groups and identities. The negative impacts that violence has on both human health and safety as well as communal well-being are highlighted by the impact of violence.

PU7

Using a Ripeness Gauge to measure Anthocyanins and Brix of Superfoods

Ryan Buzzetto More*¹, Ezra Cable,¹ Andrew G. Ristvey,¹ and Victoria V. Volkis¹

¹Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

¹University of Maryland Extension, Wye Research & Education Center, P.O. Box 169, Queenstown, MD 21658-0169

Aronia mitschurinii is a crop obtained by crossbreeding 25% of Mountain Ash with 75% of *Aronia melanocarpa*. *Aronia* has been known as a fruit having highest known antioxidant contents, making it a superfood. Recently we have shown that elderberries, and mulberries have anthocyanin content comparable to aronia. The results for aronia show that both anthocyanins and brix reach peaks over the ripening period, yet those peaks occur 2.5-3 weeks apart. Harvesting at the peak of anthocyanins is important for nutraceutical applications, while for food applications harvesting at the peak of brix is required. However, the color is the same at both peaks, presenting a challenge for farmers to decide on harvesting dates. Current laboratory methods for brix are relatively simple, while measuring anthocyanins requires expensive lab equipment that is out of reach for farmers. This creat-

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es a need for a cheap, simple, portable testing kit to test both brix and anthocyanins in the field. Anthocyanins in berries are in glucoside form, with cyanidin-3-glucoside (C-3Glu) being the major one. We have observed that at neutral pH, the measurement made with a glucometer gives readings proportional to the brix content observed with refractometer, whereas at acidic pH the glucometer measures both soluble glucose and the hydrolyzed glucoside from C-3Glu, giving readings proportional to anthocyanin content measured by UV/Vis. The results show that the glucometer can be used to obtain accurate readings proportional to the trend of anthocyanins and brix obtained using laboratory methods.

PU8

Unpurified Chitin Derived from Seafood Waste as a Reversible and Biocompatible Sorbent for Carbon Dioxide Sequestration

Raekayla Johnson*¹, Preeti Sharma, and Victoria Volkis

¹ Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Carbon Dioxide (CO₂) is one of the four main greenhouse gases and one of the most danger pollutions to the atmosphere resulted by human activities, especially by use of coal to produce electricity. The indirect effect from CO₂ pollution is so-called global warming, a highly controversial effect that has become a subject of many discussions. Yet, NOAA has demonstrated that currently the surface temperature on earth increases by two degrees Celsius every century.

Carbon capturing and sequestration (CCS) is a concept that has been used to reduce pollution of CO₂. The focus is on power plants because they alone are responsible for about 40 % of the pollution, as well as because technologically it is the easiest target to reduce pollution.

Chitin, the polysaccharide that can be derived from seafood shells, is able to bind CO₂ with its multiple amine groups. The material is biocompatible. We have shown that raw chitin from shrimps and crabs shells can act as an effective and reversible sorbent for carbon sequestration, when hydrolyzed to low molecular weight oligomers. The process of isolation, hydrolysis and purification of chitin, and the carbon sorption data are presented.

Judges & Moderators

Judges

1. Dr. Patrice Jackson-Ayotune
2. Dr. Kamil Alzayady
3. Dr. Mobolaji Okulate
4. Dr. Monisha Das
5. Dr. Ali Ishaque
6. Dr. Tracy Bell
7. Dr. Jocelyn Reader
8. Dr. Tao Gong
9. Dr. Mohammad Ali
10. Dr. Madan Kharel
11. Dr. Carole Champagne
12. Dr. Brian Gere
13. Dr. Khadidra Washington
14. Dr. Dr. Jiabing Fan
15. Ms. Jamila Johnson
16. Dr. Brian Bergen-Aurand
17. Dr. Janak Dhakal
18. Dr. Kelsie Endicott
19. Dr. Wayne Omagamre
20. Dr. Dana Little
21. Dr. Joe Pitula
22. Dr. Jennifer Bobenko
23. Dr. Simon Zebelo
24. Dr. Khaled Hasan
25. Ms. Corrie Cotton
26. Dr. Lily Tsai
27. Dr. Kingsley Ejiogu
28. Dr. Jonathan Cumming
29. Dr. Alexander Root
30. Dr. William Weaver
31. Dr. Alyssa Lucero
32. Uchenna Nwonye
33. Joshua Akinola
34. Angela Hatton
35. Mary Twumasi
36. Mercy Amofa
37. Chad Carrig
38. Keith Bucca



Moderators

1. Dr. George Ojie-Ahamiojie
2. Mr. Rondald Clark
3. Mr. Chinedu Ahuchaogu
4. Mr. Erasmus Aduteye
5. Ms. Tahirah Johnson
6. Ms. Amelia Potter
7. Dr. Kelsie Endicott

JUDGES' SCHEDULE - ORAL SESSIONS

JUDGES' COMMITTEE

Dr. Jackson-Ayotunde, Rhashanda Haywood, and Uchenna Nwonye

	JUDGE	SESSION	TIME	LOCATION
ORAL SESSIONS				
25	Dr. Brian Gere	Online Oral 6, 9, &11	10:30 a.m. - 12:00 p.m.	EASC Room 1088
26	Dr. Kamil Alzayady	Online Oral 6, 9, &11	10:30 a.m. - 12:00 p.m.	EASC Room 1088
27	Dr. Mobolaji Okulate	Online Oral 6, 9, &11	10:30 a.m. - 12:00 p.m.	EASC Room 1088
28	Mrs. Jamila Johnson	OF1-OF5	10:30 a.m. - 12:00 p.m.	EASC Room 1066
29	Dr. Carole Champagne	OF1-OF5	10:30 a.m. - 12:00 p.m.	EASC Room 1066
30	Dr. Dana Little	OF1-OF5	10:30 a.m. - 12:00 p.m.	EASC Room 1066
31	Dr. Jennifer Bobenko	OG1-OG6, OG13	10:30 a.m. - 12:00 p.m.	EASC Room 1079
32	Ms. Corrie Cotton	OG1-OG6, OG13	10:30 a.m. - 12:00 p.m.	EASC Room 1079
33	Dr. Lily Tsai	OG1-OG6, OG13	10:30 a.m. - 12:00 p.m.	EASC Room 1079
34	Dr. William Weaver	OG7-OG12	10:30 a.m. - 12:00 p.m.	EASC Room 1080
35	Dr. Prince Attoh	OG7-OG12	10:30 a.m. - 12:00 p.m.	EASC Room 1080
36	Dr. Jackson-Ayotunde	OG7-OG12	10:30 a.m. - 12:00 p.m.	EASC Room 1080
37	Mary Twumasi	OUG1 - OUG6	10:30 a.m. - 12:00 p.m.	EASC Room 1094
38	Janak Dhakal	OUG1 - OUG6	10:30 a.m. - 12:00 p.m.	EASC Room 1094
39	Dr. Jiabing Fan	OUG1 - OUG6	10:30 a.m. - 12:00 p.m.	EASC Room 1094
Extra				
52	Mercy Amofa			
53	Dr. Kelsie Endicott			

JUDGES' SCHEDULE - POSTER SESSIONS

JUDGES' COMMITTEE

Dr. Jackson-Ayotunde, Rhashanda Haywood, and Uchenna Nwonye

	JUDGE	SESSION	TIME	LOCATION
	POSTER SESSIONS			
	Dr. Kingsley Ejiogu	Poster PG 9 (online)	1:00 p.m.-2:30 p.m.	EASC 1088
1	Dr. Ali Isaque	POSTERS 1-5	1:00 p.m.-2:30 p.m.	EASC Atrium
2	Dr. Kamil Alzayady	POSTERS 1-5	1:00 p.m.-2:30 p.m.	EASC Atrium
3	Dr. Mobolaji Okulate	POSTERS 1-5	1:00 p.m.-2:30 p.m.	EASC Atrium
4	Dr. Khaled Hasan	POSTERS 6-10	1:00 p.m.-2:30 p.m.	EASC Atrium
5	Dr. Monisha Das	POSTERS 6-10	1:00 p.m.-2:30 p.m.	EASC Atrium
6	Dr. Tao Gong	POSTERS 6-10	1:00 p.m.-2:30 p.m.	EASC Atrium
7	Dr. Madan Kharel	POSTERS 11-15	1:00 p.m.-2:30 p.m.	EASC Atrium
8	Dr. Jocelyn Reader	POSTERS 11-15	1:00 p.m.-2:30 p.m.	EASC Atrium
9	Jamila Johnson	POSTERS 11-15	1:00 p.m.-2:30 p.m.	EASC Atrium
10	Dr. Carole Champagne	POSTERS 16-20	1:00 p.m.-2:30 p.m.	EASC Atrium
11	Dr. Alexander Root	POSTERS 16-20	1:00 p.m.-2:30 p.m.	EASC Atrium
12	Dr. William Weaver	POSTERS 16-20	1:00 p.m.-2:30 p.m.	EASC Atrium
13	Dr. Prince Attah	POSTERS 21-25	1:00 p.m.-2:30 p.m.	EASC Atrium
14	Dr. Bryan Gere	POSTERS 21-25	1:00 p.m.-2:30 p.m.	EASC Atrium
15	Dr. Lisa Zheng	POSTERS 21-25	1:00 p.m.-2:30 p.m.	EASC Atrium
16	Dr. Jiabing Fan	POSTERS 26-30	1:00 p.m.-2:30 p.m.	EASC Atrium
17	Dr. Tracy Bell	POSTERS 26-30	1:00 p.m.-2:30 p.m.	EASC Atrium
18	Dr. Wayne Omagamre	POSTERS 26-30	1:00 p.m.-2:30 p.m.	EASC Atrium
19	Alyssa Lucero	POSTERS U 1-4	1:00 p.m.-2:30 p.m.	EASC Atrium
20	Chad Carrig	POSTERS U 1-4	1:00 p.m.-2:30 p.m.	EASC Atrium
21	Tahirah Johnson	POSTERS U 1-4	1:00 p.m.-2:30 p.m.	EASC Atrium
22	Angela Hatton	POSTERS U 5-8	1:00 p.m.-2:30 p.m.	EASC Atrium
23	Dr. Brian Bergen-Aurand	POSTERS U 5-8	1:00 p.m.-2:30 p.m.	EASC Atrium
24	Janet Eke	POSTERS U 5-8	1:00 p.m.-2:30 p.m.	EASC Atrium

MODERATORS SCHEDULE

JUDGES' COMMITTEE

Dr. Jackson-Ayotunde, Rhashanda Haywood, and Uchenna Nwonye

	MODERATOR	SESSION	TIME	LOCATION
ALL SESSIONS				
1	Dr. George Ojie-Ahamiojie	ORAL	10:30 a.m. - 12:00 p.m.	EASC Room 1066
2	Mr. Rondald Clark	ORAL	10:30 a.m. - 12:00 p.m.	EASC Room 1079
3	Chinedu Ahuchaogu	ORAL	10:30 a.m. - 12:00 p.m.	EASC Room 1080
4	Erasmus Aduteye	ORAL	10:30 a.m. - 12:00 p.m.	EASC Room 1094
5	Tahirah Johnson	ORAL	10:30 a.m. - 12:00 p.m.	EASC Room 1088
6	Amelia Potter	POSTER	1:00 p.m. - 2:30 p.m.	EASC ATRIUM
7.	Kelsie Endicott	POSTER	1:00 p.m. - 2:30 p.m.	EASC ATRIUM

Graduate Programs & Directors



Dr. Payma Matin
M.S. Applied Computer
Science



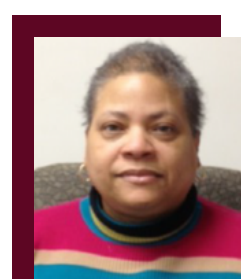
Dr. Yuanwei Jin
Ph.D. Applied Computing
and Engineering



Dr. Tyler Love
M.Ed. Career and
Technology Education



Dr. Victoria Volkis
M.S. Chemistry



Dr. Cheryl Bowers
M.Ed. Counselor
Education



Dr. Robert Brown
M.S. Criminology &
Criminal Justice



Dr. Derrek Dunn
M.S. Cybersecurity
Engineering Technology



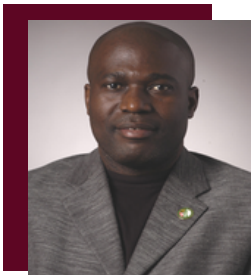
Dr. Derrek Dunn
M.S. Data Science and
Analytics Engineering



Dr. Ernest England
Ed.D. Education
Leadership



Dr. Yuanwei Jon
M.S. Electrical and
Mechatronics Engineering



Dr. Stephan Tubene
M.S. Food and Agricultural
Sciences



Dr. Caleb Nindo
Ph.D. Food and
Agricultural Sciences



**Dr. Bridgett
Clinton-Scott**
M.S. Human Ecology



Dr. Grattan C. Baldwin
Master of Arts in Teaching
(MAT)



Dr. Eric May
M.S. Marine Estuarine
Environmental Science



Dr. Tao Gong
Ph.D. Organizational
Leadership



**Dr. Patrice Jackson-
Ayotunde**
M.S./Ph.D. Pharmaceutical
Sciences



Dr. Tiffany Maxwell
M.M.S. Physician Assistant
Studies



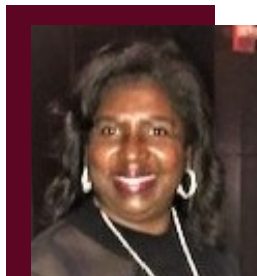
Dr. Michael Rabel
Doctor of Physical
Therapy (DPT)



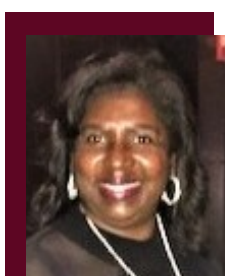
Dr. Paulinus Chigbu
P.S.M. Quantitative
Fisheries & Resource
Economics



Dr. Bryan Gere
M.S. Rehabilitation
Counseling



Dr. Patricia Goselee
M.Ed. Special Education



Dr. Patricia Goslee
Special Education
(Post-Baccalaureate
Certificate)



Dr. Miriam Purnell
Rural Health Disparities
(Post-Baccalaureate
Certificate)



Dr. Ali Ishaque
M.S. /Ph.D. Toxicology



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MECHANISMS, DIAGNOSTICS, AND POTENTIAL
TREATMENTS**

**TUESDAY, APRIL 11, 2023
1:00 PM - 4:00 PM**

**School of Pharmacy & Health Professions
Room No. 1118**

Chair: Dr. Victor Hsia

**School *of*
Graduate
Studies**



**DISSERTATION DEFENSE
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HIMALI GUJRATI

**MICRORNA-MRNA REGULATORY NETWORKS
INVOLVED IN CANCER AGGRESSIVENESS AND
DRUG RESISTANCE**

**FRIDAY, APRIL 21, 2023
9:30 AM - 10:30 AM**

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