6TH GRADUATE EDUCATION WEEK AND 11TH REGIONAL RESEARCH SYMPOSIUM

UNIVERSITY OF MARYLAND EASTERN SHORE

School of Graduate Studies BOOK OF ABSTRACTS

Graduate Education Week
April 19, 2021 to April 23, 2021

Global Approaches: Multidisciplinary Research in the 21st Century

Symposium
Thursday
April 22, 2021

University of Maryland Eastern Shore 2021 Regional Research Symposium
Carnegie Classification: High Research Activity Doctoral University
The School of Graduate Studies at the University of Maryland Eastern Shore is pleased to announce its 6th annual Graduate Education Week and 11th Annual Regional Research Symposium to be held on Thursday, April 22, 2021. The theme of this year’s symposium is:

“Global Approaches: Multidisciplinary Research in the 21st Century”

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/Symposium2020. Abstracts submitted in incorrect format will not be considered. The deadline for submission of abstracts is March 15, 2021.

The registration for the symposium may be completed online at

UMES Research Symposium 2021

We invite proposals from all disciplines and encourage faculty, staff and students to apply to present.

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

Respectfully,

LaKeisha L. Harris, Ph.D., CRC
Dean
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April 22, 2021

Each year it gives me great pleasure to see the quality of the research being presented by both graduate and undergraduate students at our Research Symposium. I am very proud of their work. I take this opportunity to congratulate the faculty, staff and students for their outstanding work, and to the Graduate School for organizing this symposium.

Graduate education and research are critical elements of the university's goals as we work to fulfill the objectives established for us by the University System of Maryland. While there is much to celebrate at UMES, there is still more work that needs to be done. I am confident that with the dedicated community of UMES faculty, staff, students and administrators, working Together in Excellence to Achieve our Mission, that we will soar to amazing heights.

Sincerely,

Heidi M. Anderson, Ph.D.
President
University of Maryland Eastern Shore President’s Cabinet 2021

Dr. Heidi Anderson

President

Dr. Robert Mock

Chief of Staff

Dr. Nancy Neimi

Provost and Vice President for Academic Affairs

Mr. Lester Primus

Vice President of Administration and Finance

Ms. Latoya Jenkins

Interim Vice President Enrollment Management and Student Engagement

Dr. David Balcom

Vice President of University Relations

Dr. Keith Davidson

Director of Athletics

Ms. Alissa Carr

Associate Vice President/ Director of Marketing and External Relations

Mr. Matthew Taylor

General Counsel
Dear Colleagues,

On behalf of the faculty, staff, and students of the University of Maryland Eastern Shore, I welcome you to the Eleventh Annual Graduate School Regional Research Symposium. We are proud to host this gathering of researchers and scholars from across our region, as we celebrate multidisciplinary research initiatives across the globe.

This year’s symposium takes on particular significance because institutions of higher education have spent most of their energies over the last 12 months on survival. From making sure that all in our academic communities were physically safe, to attention on our fiscal health, to our focus on our national community’s psychological and physical safety, we spent time at the base of Maslow’s hierarchy of needs, as the situation demanded. But even as we did so, research and scholarship continued.

The continuation of research and scholarship is critical to our well-being and our recovery as individuals, as disciplines, and as institutions of higher learning. We saw over the last year the ways in which scientific discovery led to vaccines with extraordinary speed, and we saw how social science research is helping us make sense of the racial divisions that threaten to break our country.

At the essence of research and scholarship, of course, is inquiry: we are trained to ask “why?” “how?” “why not?” and then trained to methodologically find the answers, or find deeper, more complicated questions. Having this passion for and capacity to perform systematic intellectual inquiry is something that our world needs, I would argue, now more than ever. We have seen what happens when people throughout the world’s communities do not have the training and encouragement to read the world, interrogating their own contexts and taking the power to ask their own questions. We need to help them do so, even as we follow our own continuing questions.

It is in this spirit that I welcome you to our meeting. I invite you to listen to researchers’ hypotheses, and to wonder about their results; I invite you to ask more questions. Most of all, enjoy this community of scholars. It is a privilege to have you here.

With respect,

Nancy S. Niemi, Ph.D.
Provost and Vice President for Academic Affairs
Division of Academic Affairs, University of Maryland Eastern Shore 2021

Dr. Nancy Neimi
Provost
and
Vice President for
Academic Affairs

Dr. Moses Kairo
Dean,
School of Agricultural
and Natural Sciences

Dr. LaKeisha Harris
Dean,
School of Graduate Studies and Research

Dr. Derick Dunn
Dean,
School of Business and Technology

Dr. Marshall Stevenson, Jr.
Dean,
School of Education, Social Sciences and The Arts

Dr. Rondell Allen
Dean,
School of Pharmacy and Health Professions
Greetings,

On behalf of the Graduate Regional Research Symposium planning committee, I am delighted to welcome each of you to the 11th Annual Graduate School Regional Research Symposium and 6th Annual Graduate Education Week. It is truly our pleasure to present to you, in a virtual format, the research that our faculty staff and students have developed. Some of the presentations that you will see and hear, represent years of study and collaboration.

The theme for this year’s symposium is “Global Approaches: Multidisciplinary Research in the 21st Century”. With over 60 presenters this year, you will recognize the various ways in which our researchers are tackling issues that impact others across the globe. This past year has been a difficult one for many reasons, however, the perseverance that I have seen from our Hawk Family is inspirational and it shines through in their work.

Throughout this week, you will have the opportunity to attend virtual workshops that will assist you with research and writing, as well as workshops geared toward our graduate students and the promotion of mental health awareness. Undergraduate students are also encouraged to attend our Graduate Student Panel to receive tips from current students on the best practices for the graduate admissions process.

Thank you for taking the time to view oral and poster presentations, ask questions, and engage our presenters in discussion about their fascinating projects. We look forward to your feedback as we explore new ways of presenting our research. Please stop by the virtual information booth if you have any questions.

Enjoy the symposium and thank you again for joining us!

Sincerely,

LaKeisha L. Harris, Ph.D., CRC
Dean, School of Graduate Studies and Research
SPONSORS

Office of the President

Office of the Provost and Vice President of Academic Affairs

Title III

School of Graduate Studies and Research

Institutional Advancement

School of Agricultural and Natural Sciences

Living Marine Resources Cooperative Science Center

School of Business and Technology

School of Education, Social Sciences and The Arts

School of Pharmacy and Health Professions

Frederick Douglas Library

Division of Student Affairs
6th Annual Graduate Education Week 2021
Online Via Blackboard Collaborate

“Global Approaches: Multidisciplinary Research in the 21st Century

Monday April 19, 2021
Got 2B Glued but Not Gorilla Glued! Dr. William Weaver, (Department of Natural Sciences SANS UMES)
WEBLINK: https://us.bbcollab.com/guest/22ccf0c23b7b4a339f543d22b62af0b1
Loops Till Friday, April 23, 2021

Tuesday April 20, 2021
9:00 AM — 10:00 AM IRB Workshop Dr. Jennifer Bobenko (Department of Natural Sciences SANS UMES)
WEBLINK: https://us.bbcollab.com/guest/a10f6c06517c4ba1966da88631472096

Wednesday April 21, 2021
5:00 PM — 7:00 PM Graduate Student Counseling Dr. Malika Johnson, DSW,CRSC, Director (Counseling Services, UMES)
WEBLINK: https://meet.google.com/tjh-heme-foj?hs=122&authusr=2

6:00 PM — 7:30 PM Thesis/Dissertation Writing Workshop Dr. Celest Luning-Raver (ORLD, UMES)
WEBLINK: https://meet.google.com/mkv-rxaj-hep

Thursday April 22, 2021
11:00 AM — 12:00 PM Graduate School Panel Lakeisha Harris, Dean (Graduate Studies and Research, UMES)
WEBLINK: https://us.bbcollab.com/guest/5c99bf05886b424fa5e518

Friday April 23, 2021
10:00 AM — 11:00 AM Thesis Defense Ms. Wele Elangewe (Graduate Studies and Research, UMES)
WEBLINK: https://zoom.us/j/99882721266?pwd=VXhXcFM3RnlKchZkbXQwS3lXdnpFQT09
Meeting ID: 998 8272 1266
Passcode: 459923
11th Annual Graduate Studies Regional Research Symposium 2021
Online Via Blackboard Collaborate

“Global Approaches: Multidisciplinary Research in the 21st Century

Thursday April 22, 2021

8:00 a.m. - 5:00 p.m.  Registration  and HelpDesk
(WEBLINK: https://us.bbcollab.com/guest/03e64be8e9da4c3da5eeccf135d3f2e1)

8:00 a.m. - 10:00 a.m. Judges and Moderators Check-in
(WEBLINK: https://us.bbcollab.com/guest/03e64be8e9da4c3da5eeccf135d3f2e1)

8:00 a.m. - 8:30 a.m. Virtual Networking Breakfast
(WEBLINK: https://us.bbcollab.com/guest/03e64be8e9da4c3da5eeccf135d3f2e1)

8:30 a.m. - 8:45 a.m. Greetings
(WEBLINK: https://us.bbcollab.com/guest/82cb815ad0204903abc5d6375dcbfece)

Dr. LaKeisha L. Harris, Dean, School of Graduate Studies and Research, UMES
Dr. Nancy Neimi, Provost and Vice President Academic Affairs, UMES

8:45 a.m. - 9:45 a.m. Poster Presentations Question and Answer Session
(WEBLINKS: page 24 for titles)

PF9 and LSAMP  Room 0  https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5
PF1 to PF4  Room 1  https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417
PF5 to PF8  Room 2  https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a92edfb34
PG1 to PG4  Room 3  https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110
PG5 to PG8  Room 4  https://us.bbcollab.com/guest/39229038b0ba499487a84eedaeec6aeeca
PG9 to PG12 Room 5  https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262
PG13 to PG16 Room 6  https://us.bbcollab.com/guest/d37b0f9d699440dad1fd088eca11d47
PG17 to PG20 Room 7  https://us.bbcollab.com/guest/b2f9ca7eead44cfa05c2aa084c0c19
PG21 to PG24 Room 8  https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa
PU1 to PU4  Room 9  https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a
PU5 to PU8  Room 10  https://us.bbcollab.com/guest/ed9b85f9f184184ba89d8493b5607ef

POSTER LINKS ARE ???????
11th Annual Graduate Studies Regional Research Symposium 2021
Online Via Blackboard Collaborate

“Global Approaches: Multidisciplinary Research in the 21st Century

Thursday April 22, 2021

9:45 a.m. - 11:00 a.m. Three Minute Thesis (3MT®) Doctoral and Masters Competition
(WEBLINK: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5)

11:00 a.m. - 12:00 a.m. Graduate Panel: Navigating the Graduate School Admissions process
(WEBLINK: https://us.bbcollab.com/guest/5c99bf05886b424fa5e51816a9aa9fc5)

12:00 p.m. - 1:00 p.m. Lunch

1:00 p.m. - 2:30 p.m. Oral Presentations Session
((WEBLINKS: see page 28)
OF1 to OF5 Room 11 https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab
OG1 to OG 6 Room 12 https://us.bbcollab.com/guest/eb49f06ddfdd84f6ecb8e6d423d2444c9
OG7 to OG12 Room 13 https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8f13377c1490e
OG13 to OG19 Room 14 https://us.bbcollab.com/guest/837471e538be452893613a9a92a4b388f0
OG20 to OG23 Room 15 https://us.bbcollab.com/guest/c4bc377c733e446f6df43a0d655dc061
OU1 to OU6 Room 16 https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b
OU7 to OU12 Room 17 https://us.bbcollab.com/guest/b8f1f906dfcf4aad09ee4795128c5c22
OU13 (2:15) Room 15 https://us.bbcollab.com/guest/c4bc377c733e446f6df43a0d655dc061
OU14 (2:15) Room 11 https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab

2:30 p.m. - 3:00 p.m. Break
( LSAMP ROOM WEBLINK: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5)
11th Annual Graduate Studies Regional Research Symposium 2021

Online Via Blackboard Collaborate

“Global Approaches: Multidisciplinary Research in the 21st Century

Thursday April 22, 2021

AWARDS CEREMONY

3:00 p.m. - 4:00 p.m.  
Awards Ceremony

(WEBLINK: https://us.bbcollab.com/guest/088bd211843749ac97e17e00cae098c1)

Remarks:
Dr. LaKeisha L. Harris, Dean, School of Graduate Studies and Research, UMES

Faculty (Oral Sessions)
First Place

Graduate Students (Oral Sessions)
First Place
Second Place

Graduate Students (Poster Sessions)
First Place
Second Place

Undergraduate Students (Oral Sessions)
First Place
Second Place

Undergraduate Students (Poster Sessions)
First Place
Second Place

3MT Competition
Master’s Category
Doctoral Category
People’s Choice Award

4:30 p.m.  
Closing Remarks
Dr. LaKeisha L. Harris, Dean, School of Graduate Studies and Research, UMES
BIOSKETCH DR. HEIDI ANDERSON

Heidi M. Anderson, President
University of Maryland Eastern Shore

Heidi M. Anderson, a native of Gary, Ind., 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 previously was 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.

She also was involved with the team responsible for the design and construction of a $60 million music facility. Most recently she served as a special advisor to Texas A&M Kingsville’s president, where among her accomplishment was completing a plan for a new College of Allied Health Professions.

Dr. Anderson led efforts in Texas to implement credit-transfer agreements with four community colleges, increased the number of dual-enrolled students, and helped secure $2.5 million in funding to support student success and faculty development efforts.

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 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.

She says her mother encouraged her to go to college because “she knew a good education is the road to opportunity and would allow us to escape the poverty of Gary.”

UMES’ presidency appealed to her, she says, because its “core values to produce outstanding graduates, who work to make a difference in society by transforming lives, resonates with my own values and my own experiences.”

“The combination of access to education and opportunity is essential to changing the way people think about themselves and set expectations for successful, productive lives,” she says.

Dr. Anderson is committed to building on the university’s rich history that will continue to educate students, expand research capacity and “strengthen our footprint in the community.”
BIOSKETCH DR. Nancy Neimi

Dr. Nancy Neimi,  
Provost and Vice President for Academic Affairs, UMES 

Nancy S. Niemi’s entire professional career is devoted to researching and serving American education as a means to greater social equity. As middle school teacher, elected public school board member, professor of education, department chair, and currently as Provost and Vice President for Academic Affairs at the University of Maryland Eastern Shore, Niemi channels her dedication to education to advancing opportunities with everyone who shares her vision.

Niemi’s work in the K-12 arena introduced her to the profound strengths and weaknesses of public school systems. As teacher and board member, she participated in many of the ways and means by which communities try to serve all their children. These experiences led her to work with the New York State Board of Education in areas such as collective bargaining agreements and State curriculum policy.

Armed with more questions than answers, after eight years Niemi undertook doctoral study at the University of Rochester’s Warner School of Education. There, she critically examined the socio-cultural forces that shape US education, and the ways in which gender, race, class, and meritocracy are entwined in the continuous pursuit of public education in a democracy. Niemi taught graduate students while herself a student at Rochester, earning her PhD in 2001.

As Professor of Education in Rochester, New York and New Haven, Connecticut, Niemi published over a dozen journal articles, developed curriculum, and wrote numerous public and scholarly essays and reviews. Her article, “The emperor has no clothes: Examining the impossible relationship between gendered and academic identities in middle school students,” won Gender & Education’s 2007 prize for best research article. Niemi’s book, Degrees of Difference: Women, Men, and the Value of Higher Education (2017, Wiley) examined the relationships between gender, race, and college degrees, questioning the so-called “female advantage” in college educations, and the power of a college degree to create gender equity. She is currently co-editing three different book series, including Wiley’s Handbook of Research on Gender in Higher Education (with Marcus Weaver-Hightower) which is due to be published in 2020.

Nancy’s work as an administrator in higher education has taken on many forms. She held the position of Chairperson of the Department of Education at the University of New Haven for six years. Subsequently, she became the inaugural Director of Faculty Teaching Initiatives in the Poorvu Center for Teaching and Learning at Yale University. In this position, she was responsible for helping faculty in almost every school and department develop as instructors, using their skills as researchers and scholars to hone their instructional work with undergraduate and graduate students.

In her new role as Provost and Vice President for Academic Affairs at the University of Maryland Eastern Shore, Niemi is committed to using her deep knowledge, skills, and commitment to higher education in a public institution of higher education. She sees this opportunity as a time to be bold – a time of radical commitment through unrelenting attention to UMES’ shared goals, continuous assessment of progress, and recognizing the joy of shared work that is greater than any one person can accomplish. Using the principles at the heart of academic excellence, Niemi is focused on working with UMES’ faculty, students, and staff to become one of the nation’s top 10 Historically Black Colleges and Universities. Ultimately, she believes what bell hooks said so well: “The Academy is not paradise. But learning is a place where paradise can be created. The classroom, with all its limitations, remains a location of possibility.”
EDUCATION WEEK SPEAKER SERIES:

GOT 2B GLUED BUT NOT GORILLA GLUED

FACILITATED BY: WILLIAM WEAVER PHD.
ANALYTICAL CHEMISTRY

MEETING LINK: HTTPS://US.BBCOLLAB.COM/GUEST/22CCF0C23B7B4A339F543DD22B62AFDB1

THRIVING IN
GRADUATE SCHOOL
April 21, 2021
5:00 pm-7:00 pm
5:00 - Introduction to Counseling Services with
Dr. Malkia Johnson, DSW, LCSW-C
Director
5:30 - Supporting Overall Health and Wellness
6:15 - Balancing Act: Managing Stress and Anxiety as a Graduate Student
EDUCATION WEEK SPEAKER SERIES:

IRB Workshop
Tuesday April 20, 2021
9:00 am - 10:00 am
Speaker: Dr. Jennifer Boben

Join via Blackboard

The School of Graduate Studies Presents:

Thesis/Dissertation Writing Workshop: Session 2
Speaker: Dr. Celeste Raver-Luning
ORLD Program

Workshop Details:
- Wednesday April 21, 2021
- 6:00 pm - 7:30 pm

Join via Zoom
EDUCATION WEEK SPEAKER SERIES:

School of Graduate Studies Presents:

GRADUATE SCHOOL PANEL:

NAVIGATING THE GRADUATE SCHOOL ADMISSIONS PROCESS

APRIL 22, 2021
11:00 AM - 12:00 PM
COME LEARN ABOUT THE ADMISSIONS PROCESS, FUNDING, AND MORE.
Meeting Details:
https://us.bbcollab.com/guest/5c99b0588b424fa5e51b16a90a9fc5

Drawings will take place for Graduate Application Fee Waivers.

The University of Maryland Eastern Shore Presents:

The Dissertation Defense of Wele Elangwe

Title: "Exploring Collaboration as a Self-Leadership Strategy Among Women Entrepreneurs in Central Africa: A Qualitative Interview Study"

Details:
✓ Committee Chair, Dr. Prince Attoh
✓ Date: Friday, April 23, 2021
✓ Time: 11:00 a.m.
✓ Location: Zoom link below
https://zoom.us/j/9982271286?pwd=vKoK93OvVlKvPaDDkw3v5o3KzpfoTQ9
Meeting ID: 998 8772 1286
Passcode: 491923

Department of Social Sciences Organizational Leadership Program
University of Maryland Eastern Shore
One Backbone Rd.
Spaulding Hall 1108
Princess Anne, MD 21853
Phone: (410) 651-8368
Fax: (410) 651-8418

All are welcome to attend!
11th Annual Graduate Research Symposium
Virtual Meeting Etiquette

- Please keep your microphone muted and your camera off unless you are speaking, or otherwise instructed.
- This session is being recorded. That recording will be available to participants after the symposium.
- You may post questions in the chat. The moderator will assist the presenter with answering the questions.
NONCOMPETITIVE PRESENTATIONS

Graduate Week Education Activities

Monday April 19, 2021
Got 2B Glued but Not Gorilla Glued!  Dr. William Weaver,
(Department of Natural Sciences SANS UMES)
WEBLINK: https://us.bbcollab.com/guest/22ccf0c23b7b4a339f543d22b62af0b1
Loops Till Friday, April 23, 2021

Tuesday April 20, 2021
9:00 AM — 10:00 AM  IRB Workshop  Dr. Jennifer Bobenko
(Department of Natural Sciences SANS UMES)
WEBLINK: https://us.bbcollab.com/guest/a10f6c06517c4ba1966da8863472096

6:00 PM — 7:30 PM  Thesis/Dissertation Writing Workshop.  Dr. Celest Luning-Raver
(ORLD, UMES)
WEBLINK: https://meet.google.com/mkv-rxaj-hep

Wednesday April 21, 2021
10:00 AM — 11:00 AM  Graduate Student Counseling  Author, title
(Dept School UMES)
WEBLINK: https://meet.google.com/tjh-heme-foj?hs=122&authusr=2

Thursday April 22, 2021
11:00 AM — 12:00 PM  Graduate School Panel Lakeisha Harris, Dean
(Graduate Studies and Research, UMES)
WEBLINK: https://us.bbcollab.com/guest/5c99bf05886b424fa5e518

Friday April 23, 2021
10:00 AM — 11:00 AM  Thesis Defense
Ms. Wele Elangwe
(Graduate Studies and Research, UMES)
WEBLINK: https://ZOOM.us/j/99882721266?pwd=VXhXcFM3RnIKcHzkbXQwS3IXdnpFQT09
Meeting ID: 998 8272 1266
Passcode: 459923
SYMPOSIUM SESSIONS SCHEDULES  (Thursday April 22, 2021)

COMPETITIVE PRESENTATION

3MT Competition

Graduate Competition and Undergraduate Trials:  Thursday April 22, 2021  9:45 AM—11:00 AM
WEBLINK:  https://us.bbcollab.com/guest/b44baafa6a2e4192a116402c4566b6ab

Symposium Poster Sessions

Faculty Abstracts (PF1—PF10)  8:45 AM - 9:45 AM  WEBLINK:  See page 24
Graduate Students Abstracts (PG1—PG26)  8:45 AM - 9:45 AM  WEBLINK:  See Page 24
Undergraduate Students Abstracts (PU1—PU7)  8:45 AM - 9:45 AM  WEBLINK:  See Page 24

Symposium Oral Sessions

Faculty Abstracts (OF1-OF5)  1:00 PM - 2:30 PM  WEBLINK:  See Page 28
Graduate Student Abstracts (OG1-OG23)  1:00 PM - 2:30 PM  WEBLINK:  See Page 28
Undergraduate Student Abstracts (OU1-OU15)  1:00 PM - 2:30 PM  WEBLINK:  See Page 28
Participant and Affiliate Institutions 2021

Barbara Goldberg & Associates, LLC. (Wilmington, DE)

Howard University (Washington, DC)
Department of Biochemistry and Molecular Biology, College of Medicine,

National Oceanic and Atmospheric Administration (Santa Cruz, CA)
Monterey Bay, National Marine Sanctuary National Ocean Service

Perdue Farms, Inc. (Salisbury, MD)

Rothschild's Orthopedic Appliances (Salisbury, MD)

St. John's University (Jamaica, NY)
College of Pharmacy and Allied Health Professions

Salisbury University (Salisbury, MD)
Department of Education

U.S. Department of Agriculture--ARS, (Beltsville, MD)
Environmental Microbial and Food Safety Laboratory

U.S. Department of Agriculture--ARS, (University Park, PA)
Pasture Systems and Watershed Mgmt Research Unit

USDA-APHIS-PPQ, (Beltsville, MD)
Plant Germplasm Quarantine Program,

University of Maryland, Baltimore County (Baltimore, MD)
Department of Biological Sciences

University of Maryland College Park (College Park, MD)
College of Computer, Mathematical and Natural Sciences

University of Maryland College Park (Wye River, MD)
WYE Research and Extension Center

University of Maryland Eastern Shore (Princess Anne, MD)
Department of Agriculture, Food and Resources Sciences
Department of Computer Science
Department of Engineering and Aviation Sciences
Department of Human Ecology
Department of Mathematics
Department of Natural Sciences
Department of Pharmaceutical Sciences
Department of Pharmacy Practice and Administration
Department of Pharmaceutical Sciences
Department of Physical Therapy
Department of Rehabilitation Services
Department of Rehabilitation
Department of Social Sciences,
Department of The Built Environment, CTED Graduate Studies
Physician Assistant Department
M.Ed., BMI
Organizational Leadership
Toxicology

University of Maryland Extension, Wye Research & Education Center. (Queenstown, MD)
3MT® COMPETITION PARTICIPANTS

Doctoral Category

3MTD1. Ms. Shellyanne Henry, Food and Agricultural Science
Impact of Hemp Drying Methods on Cannabidiol (CBD) Content

3MTD2. Mr. Andre Martin, Pharmacy
Racism as Public Health Emergency

3MTD3. Ms. Mfon Nwabuoku, Education Leadership
Doctoral degree: What Difference Did It Make?

3MTD4. Ms. Kimberly Diaz, Pharmacy
Evaluation of Clinical Inertia in the Management of Diabetes in Two Primary Care Offices

3MTD5. Ms. Preeti Sharma, Marine Estuarine Environmental Science
The Use of Chitin and its Derivatives in Reversible Carbon Dioxide Sequestration

Master's Category

3MTM1. Mr. Kabu Aduteye, Food and Agricultural Science
Assessing Farmers' Perceptions of Climate Change and the Potential for Adaptation in the Delaware, Maryland, and Virginia Peninsula.

3MTM2. Ms. Diamond Lilies, Toxicology
“Forever Chemicals” in Soils, Water and Crops in the Delmarva - How Much Is It?

3MTM3. Ms. Feyisanmi Ojo, Food and Agricultural Science
PFAS and its Toxicological Effect on Edible Crops

Undergraduate Trials

Trial 1. Fasil Amado, Aviation Science, Sophomore
General Aviation vs. Commercial Aviation Practices

Trial 2. Ruth Tadesse, Aviation Science, Junior
Regional Airlines vs. Major Airline Services

Trial 3. Sean Irwin, Aviation Science, Senior
Applications in Commercial Business using Unmanned Aerial Systems (UAS)

Trial 4. Tyrese Smith, Aviation Science, Senior
Factors of Stress upon Air Traffic Controllers

Trial 5. Noah Beauchamp, Aviation Science, Senior
Flying Blind as a Pilot: The Understanding of Aviation Weather and the General Aviation Community

Trial 6. Dakota Ward, Aviation Science, Senior
Hazardous Attitudes of Flight Training and Pilots in Safety

Trial 7. Collin S. Zook, Aviation Science, Senior
The Effect of COVID-19 on Flight Training Students

Trial 8. Ian Walker, Aviation Science, Senior
Pilot Distractions and Automation

Trial 9. Zachary Seiler, Aviation Science, Senior
Got Pilots? Improving Student Pilot Retention
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ORAL UNDERGRADUATE

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OU7 Functional Characterization of Insulin Receptor and NHE3 in Zebrafish Kidney. Iyinyoluwa Okulate and Dr. Tracy Bell. 62
1:00 p.m. Weblink: https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22

OU8 Hydrolysis of Chitin from Seashells. Jalani Addison, Preeti Sharma, and Dr. Victoria V. Volkis. 63
1:30 p.m. Weblink: https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22

OU9 Insulin Receptor Signaling And Zinc In The Zebrafish Kidney. Brianna Gaskins, Reneece Skee and Dr. Tracy Bell. 63
1:30 p.m. Weblink: https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22
OU10 Investigating The Role Of Rho1 In Bacterial Clearance Using Drosophila Melanogaster. Briah Barksdale, Shonda Campbell and Dr. Jeff Leips. ......................................................... 63
1:45 p.m.  Weblink: https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22

OU11 Observing Spread of Disease using Graph Theory and Link Prediction. Darryl Parsons and Dr. Tiara T. Cornelius. ......................................................................................... 64
2:00 p.m.  Weblink: https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22

OU12 Probing Specialty Crops and Medicinal Herbs Extracts for Potential Antifouling Agents. Teemer Barry, Carson Cohen, Baruch S. Volkis, Dr. Paulinus Chigbu and Dr. Victoria V. Volkis. ............................ 64
2:15 p.m.  Weblink: https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22

OU13 Expanding the Phylum Cnidaria of the Species Database for the West Coast National Marine Sanctuaries. Semaj Fielding and Dr. Steve Lonhart. ......................................................... 64
2:15 p.m.  Weblink: https://us.bbcollab.com/guest/c4bc377c733e446fbd43a0d655dc061

OU14 Plant Growth Regulator Concentrations Influence Rooting in Asexually Propagated Plants of Cannabis sativa L. Tyler Reid, Knowledge Wells, Erik Lindsay, Michael Foland, Carissa Jackson, Gabrielle Johnson, Dr. Papaiah Sardaru, Dr Behnam Khatabi and Dr. Sadanand Dhekney. ......................................................... 65
2:15 p.m.  Weblink: https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab

OU15 Radiative Cooling Using Cellulite Materials. Yeganeh Mansourian and Dr. Kausik S Das. ....................... 65
1:15 p.m.  Weblink: https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22
Amyotrophic Lateral Sclerosis (ALS) is a fatal disease with progressive degeneration of motor neurons. Our objective was to describe and understand the functional decline throughout ALS progression, including fall risk. Data was collected from retrospective chart reviews from a multidisciplinary clinic (“local patients”). Local patients met criteria, had voluntary participation, and informed consent (N=29). Tests included the Timed Up and Go (TUG) and gait velocity. Subjective measures included the ALS Functional Rating Scale-Revised (ALSFRS-R), including the gross motor subscale (GMS). Local patient data was compared to a large database from ALS clinical trials (PROACT). Local patients were found to be similar to the PROACT data in onset type, chronicity of progression of ALSFRS-R, and chronicity of GMS for both limb- and bulbar-onset patients. The results of this study can thus be generalized. The average gait velocity was <1.2 m/s at all times; slow at diagnosis, then increased, then declined again. Since diagnosis, average TUG was >13.5s and remained grossly unchanged. The 13.5s TUG fall-risk cut-off relates to a 40 on the ALSFRS-R and to an 8 on GMS. Relating the TUG and ALSFRS-R/GMS gives insight into fall risk. Physical tests are limited to patients able to perform them, limiting analysis beyond individual use in mid- to later-stages of ALS disease progression. Information from subjective measures can be used when patients can no longer perform physical tests. Patients with ALS and their caregivers benefit from PT management, including fall prevention.

Comparing Acute:Chronic Workload Ratios in Recreational Runners

Yasmine Darrehmane*, Kayleigh Kinnelly1, Sara Shaw1, Ethan Wolff1 and Dr. Katherine James1
1Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Training load errors are a large contributor to running related injuries. Traditionally, runners have used external methods of training load monitoring (pace, mileage, duration), but internal training load monitoring has been shown to be a more effective method to predict injury in athletes. sRPE is an internal training load monitoring method that correlates with both heart rate and oxygen consumption, but is simple to track and requires no equipment. Acute:chronic workload ratios (ACWR) calculating using session rate of perceived exertion (sRPE) consider an athlete’s weekly training load in the context of their four week average and have been used in other sports as a means to predict injury. There is limited data on the usefulness of ACWRs using internal training load monitoring methods in endurance sports. The purpose of this study was to compare ACWRs between healthy and injured recreational runners over a three month period. Data was collected using a daily self-reported email survey. Thirty-six recreational runners met inclusion criteria and logged sufficient data to be analyzed. Twenty-six activities in the clinical training of mental health and vocational rehabilitation counselors. These experiences provide the opportunity for the application of theory and the development of professional skills, competencies and aptitudes under the direction of experience and licensed clinicians. Previous studies have noted that the occurrence of natural disasters and pandemics is disruptive to higher education, and is likely to impact clinical education. Supervisors that provide these services in rural settings, unlike those in urban settings face several challenges when providing supervision to students in training. This study explored the perceptions of rural site supervisors relative to practicum and internship training to students in rehabilitation during the COVID 19 pandemic. Specifically, we were interested in identifying the challenges and barriers that rural site supervisors are facing in the facilitation of practicum and internship training experiences of students. A researcher-developed survey was used to collect data from supervisors working in mental health and vocational rehabilitation services in the Eastern Shore, Maryland. The results indicate that many rural supervisors are unable to provide direct clinical supervision to interns due to inadequate resources (e.g. space, personal protective equipment, computers for tele-supervision) and concerns about contracting or spreading the virus.
runners remained healthy during the reporting period, while ten runners were classified as injured. No significant differences between the average ACWRs between the groups were found.

**PF4 9:30 a.m.**
Weblink: https://us.bbcollab.com/guest/f9c79c1e23d8486b24cd9ea10f52417

Do Physical Therapists in Maryland Know About Myotonic Dystrophy? A Preliminary Analysis

Dr. Mary E. Layshock*, Dr. Cindy Holder Gill, Czarmaine D. Andaya, Sydney M. Deems and Megan M. Findle
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Our purpose was to assess and describe the awareness of myotonic dystrophy (DM) among physical therapists (PTs). Focused on diagnostic delay, we targeted PTs working in acute care and outpatient settings who may treat undiagnosed people who are symptomatic for DM. We hypothesized that the majority of PTs have not heard of DM and that those who have heard of DM have low levels of awareness, knowledge and confidence regarding DM.

Myotonic dystrophy (DM) is an autosomal dominant genetic disorder with a progressive multisystemic presentation, anticipation between generations, and no cure. DM has 2 major types; the average diagnostic delay is 7 years for people with DM1 and 14 years for DM2. Earlier diagnosis allows more timely treatment to delay the progression of symptoms, increase quality of life, and provide the opportunity to enroll in studies. As movement experts, PTs may treat people with DM even before a diagnosis.

PTs also conduct screenings for potential referral to other health care practitioners.

A survey was distributed to PTs and PT facilities in Maryland. Questions addressed demographics, education, and awareness of myotonic dystrophy. The 122 PTs who responded averaged 15 years PT experience. Seventy-five (62%) responded that they had “heard of” myotonic dystrophy; these 75 answered further questions regarding DM. Of the 75 PTs, 73% rated their awareness as poor/fair, greater than 95% rated their knowledge as poor/fair and 92% rated their confidence as poor/fair regarding DM. Only two PTs self-rated as “very good,” and only in “awareness.” Four PTs noted they were aware of a method to screen patients for DM. After being provided brief information regarding DM, 61% of 119 respondents indicated they were interested in having more information about myotonic dystrophy. We found a significant opportunity to increase awareness, knowledge and confidence of DM among PTs in Maryland’s acute care hospital and outpatient settings, and a strong opportunity to increase knowledge of appropriate methods to screen for DM.

PTs are interested in learning more about myotonic dystrophy.

The results of this study demonstrate both a need and an opportunity to increase PTs’ awareness of myotonic dystrophy. Physical therapists who recognize symptoms in undiagnosed patients can be an important part of the diagnostic process. With increased awareness, knowledge, and confidence of the clinical presentation of myotonic dystrophy, PTs can become a key to decreasing the diagnostic delay for these individuals through a simple screening process and referral.

**PF5 8:45 a.m.**
Weblink: https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34

Effect of Container Size and Plant Source on Growth and Physiological Characteristics of Greenhouse Ginger

Gabrielle Morris1*, Lurline Marsh1, and Brett Smith1
1Department of Agriculture, Food, and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21583

Ginger (Zingiber officinale Rosc) is a spice produced from rhizomes which grow horizontally. This makes it necessary to consider the size of its growing area. Information on the development and physiology of the plant in containerized greenhouse conditions is limited. This study determined the effects of container size and rhizome source on ginger shoot growth, chlorophyll content, leaf chlorophyll index (LCI), transpiration rate, and rhizome yield. Two sets of ginger, derived from non-tissue culture (O1) and tissue culture (O2) origins were planted in the university greenhouse on June 3, 2019 and monitored in the fall in three rectangular plastic pan types of the following areas 737cm2 (T1), 304.5cm2 (T2), 376.0cm2 (T3) and in a heavy-duty plastic bag type 240.0cm2 (T4). From the rapid growing phase, up to flowering at 10/23 (4.5 weeks after planting), shoot height and tiller number increased, T1O2 was generally shortest (<60cm), and T4O1 generally produced the least tillers. Chlorophyll content during this period did not generally differ among the treatments, except for T2 which was lowest (320.2 umol m2) on 10/10. LCI ranged from 50 to 35 with inconsistent differences among treatment combinations. Stomatal conductance varied over the sampling time and across container type and sources; toward the end of the rapid phase, stomatal conductance declined slightly. Per plant fresh shoot biomass increased with container size, but fresh rhizome yield was unaffected. The results did not show consistent trends on the influence of the containers size and material sources on the development and physiological characteristics evaluated.
Impacts of Poultry Manure Placement Methods and Cover Crop Combination on Soil Health of Organic Cropped Field Sites

Petrina McKenzie-Reynolds1, Dr. F. Hashem1, Dr. P. Millner2, Dr. A. Allen1, Dr. L. Marsh1, A. Kenney1, B. Smith1, Dr. Salina Parveen and Dr. A.S. Collick1

1Department of Agriculture, Food, and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21583
2USDA-ARS, Environmental Microbial and Food Safety Laboratory, Beltsville, MD 20705

Incorporation of animal manure in a cover-cropped production system improves soil quality and crop productivity. Timing and placement methods of manures are important management considerations to ensure both soil and plants adequately benefit from manure applications. This randomized complete block study assessed two soil management factors (treatments), 1) the application methods (tilled-in (T), banding (bnd), and subsurface (ss) trenching) of 2) three poultry manures (untreated litter (PL), compost (C) or heat-treated poultry pellets (PP) and two cover crops [hairy vetch (HV), forage radish (FR)]; with treatment combinations of (HV+PL-bnd/ss, HV+PP-bnd/ss, FR+PL-bnd/ss, FR+PP-bnd/ss, PLCss, TPL, TPLC, PPss and PLss) on soil health in plots cultivated with cantaloupe, cucumber, spinach, or radish. Results show that the type of poultry litter amendment in addition to cover crops improved soil health parameters, such as organic matter (104%), active carbon (15.2%), soil nitrogen (24%), macro (295%) and micro-nutrients (76.21%) over-all content when compared to base-line assessments. These improvements varied significantly by manure treatments and by the particular fresh produce crops grown at the sites. However, the method of manure application had no significant effect (p>0.05) on these soil health parameters. Findings from this study will be used to develop recommendations that will aid growers in managing manure application and improving soil health in specialty crop production systems.

MADDPR 2020: A Virtual Biomedical Sciences Summer Camp Held During the COVID-19 Pandemic for Underserved High School Biomedical Students in Somerset County, MD

Dr. Anjan Nan1, Dr. Adel H. Karara1, Barbara Goldberg2 and Rekha Shukla

1School of Pharmacy, University of Maryland Eastern Shore, Princess Anne, MD 21853
2Barbara Goldberg & Associates, LLC, Wilmington, DE

The Maryland Action for Drug Discovery and Pharmaceutical Research (MADDPR) program is designed to provide hands-on laboratory experience and mentoring to underserved minority high school students to stimulate their interest in pursuing education and careers in biomedical research and applied healthcare. Research indicates that students who demonstrate a strong interest in STEM are most influenced by extracurricular and hands-on lab experiences.

With the inability to conduct an in-person summer camp due to COVID-19, the researchers transitioned to a virtual program in 2020. Thirty-three students participated in live sessions using Blackboard Collaborate Ultra. Several sessions utilized interactive simulation software e.g., science labs (Labster®), animal behavior experiments (Sniffy the Virtual Rat®), and aseptic compounding (Virtual Interactive Clean Room®). Graduate student mentors assisted the students in virtual breakout sessions. The program performance was evaluated using pre- and post-survey and personal interviews. Several COVID-19-related contents were presented to stimulate student interest and survey data indicated that these sessions received high ratings. Majority of the students felt comfortable participating in the virtual sessions and indicated that they enjoyed the game-like simulation exercises. Majority of the participants indicated an interest in pursuing careers in pharmacy/other health professions after the camp. The virtual camp experience prepared the students for the coming fall semester at school. Post camp survey indicated that 100% respondents look forward to attending next year’s camp. The program plans to expand enrollment and incorporate additional topics related to the COVID pandemic e.g., health disparity and equity.

Students’ Mental Health And Well-Being During The COVID-19 Pandemic

Lana Sherr, PharmD, BSPharm1, Amna Paracha, PharmD Candidate1, Hoai-An Truong, PharmD, MPH, FAPhA, FNAP1, Lynn Lang, PhD1

1Department of Pharmacy Practice and Administration, School of Pharmacy and Health Professions, University of Maryland Eastern Shore, Princess Anne, MD 21853

The COVID-19 pandemic caused an unprecedented impact on educational institutions. With no clear direction or timeline, students faced an ongoing wave of changes pri-
primarily due to distance education and virtual learning. The aim of this study is to assess the extent to which students’ mental health and well-being may have been impacted during the pandemic and determine opportunities and resources for support. A survey was adapted from the Center for Disease Control and Prevention (CDC) Global School-Based Students’ Health Survey. It consists of 15 questions, including 3 open-ended questions, and was administered to a total of 143 students (126 pharmacy and 17 physician assistant students) in the fall 2020 semester. Demographic data was collected, and descriptive statistics were utilized for data analysis. Thirty-four out of 143 students responded to the survey, yielding a 24% response rate. Of the 34 responses, 31 students (91.2%) felt stressed at least 1-2 days a week during the COVID-19 pandemic. Reported causes of significant stress were academic work (97.1%), fear of the unknown (61.8%), and technology/internet issues (50%). Participants noted listening to music, praying, exercising, and interacting with friends as the most frequent mechanisms used to cope with stress. The COVID-19 pandemic has presented many challenges to students and adversely impacted their mental health and well-being. The findings of this study highlight the need to develop interventions and strategies to address these issues.

PF9 8:45 a.m.
Weblink: https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417

The Impact of Pre- and Post-Lecture Online Quizzes of Pharmacology Course on Students’ Progression

Khaled Hasan, M.D., M.S., Ph.D. and Patrick Makary, Ph.D.
1Department of Pharmaceutical Sciences, School of pharmacy and health professionals, University of Maryland Eastern Shore.

A total of 119 second year physical therapy students from the physical therapist program participated in this study. Pre- and post-lecture online quizzes were delivered before and after each lecture, respectively. Pre- and post-lecture online quizzes were created using Google Forms. Each online quiz consists of ten multiple-choice questions about the three different pharmacology topics covered in the classroom. The average score of the post-lecture quiz was improved significantly compared with the pre-lecture quiz in three pharmacology units. Students’ grades of the final exam were insignificantly higher compared with midterm grades. A Group of online quizzes tends to have a significantly higher final exam grades compared with a final control group. The performance of students in the classroom indicated a significant improvement in understanding and comprehension of the academic materials. Using both pre-and post-lecture quizzes can improve physical therapy student preparation and increase student participation in the classroom.

PF10 9:00 a.m.
Weblink: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5

STEM MAJORS: Yes, YOU Can Help Improve Science Education for Minority Students!!!

Dr. Deborah Sauder, Dr. Tracy Bell and Sherene Black
Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853.

How? Participate in an ongoing study sponsored by the University System of Maryland Louis Stokes Alliance for Minority Participation (LSAMP).

1) Complete a Survey! Be entered for a chance to win a $100 Amazon gift card.
2) Volunteer to participate in a virtual Focus Group. Students who are selected and complete the focus group will be sent a $20 Amazon gift card.

Your experiences count. Volunteer today. Pass it forward.
Agricultural Entomophagy: Insect Rearing for Human Consumption, Feed and Biological Controls

Ebony Jenkins*1 and Dr. Simon Zebelo1
1 Department of Agriculture, Food and Resource Sciences, University of Maryland, Eastern Shore, Princess Anne, MD 21853

As the human population grows, it is very important to sustain rather than increase the levels of consumption. Scientists are struggling to find alternative ways to feed the ever-increasing population. Current sources of protein are not sustainable. Approximately 70% of the land on our planet is used for agriculture and 30% of this is used for livestock production. Insects require 10 to 50% less of the amount of water than other animals use, for food and land per pound of protein. Insects utilize less energy, feed, land and water than livestock; therefore, contributing less to climate change and pollution. Developing and evaluating protein extract made from mealworms and crickets will aid food companies in their goal to add higher levels of insect protein to products without adding fat, calories or negatively affecting product quality. This study’s objectives are to a) determine the optimum space, density and temperature for rearing edible insects, b) to study feed optimization and food waste viability for edible insects, and c) determine genetic selection or selective breeding of edible insects. The insects had a choice of an artificial with 2 different preservatives and a control. The preference was given to preservative solution EJ-UMES-19. This research could provide consumers with a protein increased product, while saving on natural resources.

PG2 9:00 a.m.
Weblink: https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110

Amyotrophic Lateral Sclerosis Disease Progression: The Usefulness and Limitations of Functional Outcome Measures

Sheila Amini*, Margaret Blount, Emily Hawkins, Paige LeVora, Kevin O’Donoghue, Zach Robertson, Natalie Speth, Chris Tingle, Sam Yim, Dr. Michelle J. Sanfilippo, Dr. Mary E. Layshock and Dr. Leslie P. Keniston
Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Amyotrophic Lateral Sclerosis (ALS) is a fatal disease with progressive degeneration of motor neurons. Our objective was to describe and understand the functional decline throughout ALS progression, including fall risk. Data was collected from retrospective chart reviews from a multidisciplinary clinic (“local patients”). Local patients met criteria, had voluntary participation, and informed consent (N=29). Tests included the Timed Up and Go (TUG) and gait velocity. Subjective measures included the ALS Functional Rating Scale-Revised (ALSFRS-R), including the gross motor subscale (GMS). Local patient data was compared to a large database from ALS clinical trials (PRO-ACT). Local patients were found to be similar to the PRO-ACT data in onset type, chronicity of progression of ALSFRS-R, and chronicity of GMS for both limb- and bulbar-onset patients. The results of this study can thus be generalized. The average gait velocity was <1.2 m/s at all times; slow at diagnosis, then increased, then declined again. Since diagnosis, average TUG was >13.5s and remained grossly unchanged. The 13.5s TUG fall-risk cut-off relates to a 40 on the ALSFRS-R and to an 8 on GMS. Relating the TUG and ALSFRS-R/GMS gives insight into fall risk. Physical tests are limited to patients able to perform them, limiting analysis beyond individual use in mid- to later-stages of ALS disease progression. Information from subjective measures can be used when patients can no longer perform physical tests. Patients with ALS and their caregivers benefit from PT management, including fall prevention.

PG3 9:15 a.m.
Weblink: https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110

Mental Health diagnosis rates are raising as the years go on especially in African Americans population. People are becoming more aware of the stress and life pressures on their mental health. A review of research literature states that older African Americans suffer from depression the most; however, they are the more reluctant ethnic group to seek help. African Americans also face barriers in the recognition and treatment of major depression including the stigma about their diagnosis. Using a qualitative approach with in-depth interviews of 10 African American elderly participants, this preliminary research found four reoccurring themes: African Americans are more likely to suffer from depression because of social status, African Americans are not allowed to suffer from depression, that people with depression are treated differently in society, and that African Americans require more communal and societal support in order to effectively address mental health issues. These themes shed lights on the unique perspectives of African American elderly towards depression and a conversation about mental health in the African American community is much needed to change the stigma created.

PG1 845 a.m.
Weblink: https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110

African American Elders’ Attitude towards Depression

*Taylor Winston1 and Dr. Lisa Zheng1
Department of Rehabilitation, University of Maryland, Eastern Shore, Princess Anne, MD 21853

Weblink: https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110

University of Maryland Eastern Shore 2021 Regional Research Symposium
Carnegie Classification: High Research Activity Doctoral University
Assessing the Impact of COVID-19 on Food Insecurity and Risk of Developing Type 2 Diabetes on Two University Campuses

Abbey Kane1*, Bethany Balentine2, Sarah Harbinsong, and Michael Kirtsos4, MS, RDN, CSSD, LDN
1Department of Human Ecology, University of Maryland, Eastern Shore, Princess Anne, MD 21853

Previous research indicates 15 - 19% of college students were food insecure before the pandemic. Recent studies indicate COVID-19 has increased the prevalence of food insecurity by 34.5% among college students. Research shows food insecure adults are at a 50% increased risk for developing diabetes. The aim of this study is to determine the impact COVID-19 has on food insecurity and risk of incident of Type 2 Diabetes in University of Maryland Eastern Shore (UMES) and Salisbury University (SU) students.

Participants consisted of 167 UMES students and 491 SU students. A 19-question survey was distributed assessing the impact of COVID-19 on food insecurity and risk for Type 2 Diabetes. The results indicate 42.5% of UMES students and 39.7% of SU students are at risk for food insecurity (p = 0.05). The impact of COVID-19 indicated that UMES students had a higher increase in their alcohol intake (p = 0.03) and SU students gained a statistically higher amount of weight (p = 0.02). Overall, 6.5% of UMES students are at risk for Type 2 Diabetes compared to 3.9% of SU students. COVID-19 has impacted health by impacting lifestyle factors such as weight gain and alcohol, which may be contributing to a higher risk of food insecurity and Type 2 Diabetes. UMES are students at a 2.5 times higher risk for Type 2 Diabetes. Only 10.7% of UMES and 5.3% of SU students reported accessing food assistance programs during the pandemic, although both universities offer a food pantry.

Bitter Gourd (Momordica charantia L) Cultivation on the Delmarva Peninsula

Aduteye Erasmus Kabu*, Stanley Meli, and Dr. Naveen K Dixit
*Department of Human Ecology and Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Bitter gourd cultivar Mini Hybrid-225 (4" fruit length) and India Hybrid (12" fruit length; Kitazawa Seed Company, Oakland, CA) were raised in starter trays during the first week of April 2020 and planted (2-4 leaf stage) in the first week of May 2020 using a plasticulture system.
in open bed regimes at UMES. The experiment was conducted in a randomized complete block design with four replicates of 10 plants of each variety. India Hybrid showed higher fruit yield (5.5 Kg/plant) in comparison to Mini Hybrid-225 (4.05 Kg/plant). Similarly, average fruit weight was also higher in the India Hybrid (Fruit weight: 110 g /plant) in comparison to Mini Hybrid-225 (Fruit weight: 65 g /plant). However, Mini Hybrid-225 produced more fruits (62.3/plant) per plant in comparison to India Hybrid (50.5 /plant). Mini Hybrid-225 produced more number of male (562) and female (83) flowers with a male/female sex ratio of 6.77. However, less number of male (482) and female (75) flowers were produced by India Hybrid but maintained a lower male/female sex ratio (6.42). Total plant dry matter showed non-significant differences among the varieties. We did not observe any economic losses by Target leaf spot in bitter gourd. However, both the varieties are susceptible to this disease. In vitro application of Nano-zinc-oxide completely inhibited the fungal hyphal growth at 25 mM concentration.

PG8 9:15 a.m.
Weblink: https://us.bbcollab.com/guest/392290386b0ba499487a84edeac6ae

Comparing Acute:Chronic Workload Ratios in Recreational Runners

Yasmine Darrehmane, Kayleigh Kinnelly, Sara Shaw, Ethan Wolff and Dr. Katherine James

Training load errors are a large contributor to running related injuries. Traditionally, runners have used external methods of training load monitoring (pace, mileage, duration), but internal training load monitoring has been shown to be a more effective method to predict injury in athletes. sRPE is an internal training load monitoring method that correlates with both heart rate and oxygen consumption, but is simple to track and requires no equipment. Acute:chronic workload ratios (ACWR) calculating using session rate of perceived exertion (sRPE) consider an athlete’s weekly training load in the context of their four week average and have been used in other sports as a means to predict injury. There is limited data on the usefulness of ACWRs using internal training load monitoring methods in endurance sports. The purpose of this study was to compare ACWRs between healthy and injured recreational runners over a three month period. Data was collected using a daily self-reported email survey. Thirty-six recreational runners met inclusion criteria and logged sufficient data to be analyzed. Twenty-six runners remained healthy during the reporting period, while ten runners were classified as injured. No significant differences between the average ACWRs between the groups were found.
product Cannabidiol (CBD) are major chemical components found in the flower extracts of Hemp varieties representing Cannabis sativa. In contrast to the more infamous cannabinoid relative, Δ9tetrahydrocannabinol (Δ9-THC), CBD does not induce typical psychoactive, behavioral cannabimimetic effects, while CBD has been purported to alleviate the undesirable psychological effects brought by THC such as anxiety, drowsiness, and cognitive impairment. CBD offers many potential therapeutic uses in autoimmune diseases, neurological conditions, cardiovascular dysfunctions, analgesic, etc. The safety and efficacy of CBD has been well studied and approved by the US FDA under the name Epidiolex as a therapy for pediatric epilepsy. Our studies also found that CBD could rapidly abolished the voltage-gated sodium channel (VGSC) activity in human dorsal root ganglia (DRG) neurons within minutes. Inhibition of VGSC activity is well correlated with pain relief. Furthermore, we found that CBD regulated other aspects of DRG biology which resulted in reduction of viral activity when the CBD treated cells are exposed to Herpes simplex virus 1 (HSV-1).

Herpes viruses can establish latent infections in the sensory neurons of trigeminal and DRG. The period of the latency varies among individuals, from few days to lifetime, when the reactivation is triggered, it is generally accompanied by pain and other complications. In this study, we investigate the antiviral effects of CBD on HSV-1 infection as well as its impact on DRG neurons. A tolerable concentration of CBD to human body could suppress the HSV-1 gene expression and replication in the DRG neurons. Intriguingly, this suppressive effect can befall hours after the viral infection of the neurons, suggesting a potential therapeutic protocol to control HSV-mediated pains following reactivation. Our long-term goal is to elucidate the CBD anti-HSV mechanism in our culture system and develop cannabinoid-based treatments for HSV and other viruses.

**PG11 9:00 a.m.**

*Weblink: [https://us.bbccollab.com/guest/aa7ea84509794e10b575c004e08f0262](https://us.bbccollab.com/guest/aa7ea84509794e10b575c004e08f0262)*

Identification and Functional Analysis Of MicroRNA-mRNA Reciprocal Pairs Involved In mTOR And VEGF Signaling In Prostate Cancers

**Himali Gujrati**¹ and Dr. Bi-Dar Wang¹

¹The School of Pharmacy and Health Profession, University of Maryland Eastern Shore, Princess Anne, MD 21853

Prostate cancer (PCa) has been the most frequently diagnosed cancer and the second leading cause of cancer deaths among American men. Particularly, African American (AA) men are at 1.6 times higher risk and 2.4 times more likely to die from this disease compared to European-American (EA) men. Various socioeconomic and environmental factors have been known to play roles in cancer health disparities between AA and EA PCa. Despite adjustment to those factors, cancer mortality and recurrence remained higher in AA population, indicating the intrinsic biological differences exist in PCa disparities. MicroRNAs (miRNAs) have been functionally implicated in multiple types of cancer. In PCa, overexpression of oncogenic miRNAs and downregulation of tumor suppressive miRNAs influence cancer development and progression through regulating genes involved in multiple signaling pathways that contribute to tumor initiation, invasion and/or metastasis. In this study, we have identified the differentially expressed microRNAs (including miR-34a-5p, miR-99b-5p, and miR-96-5p), microRNA-mRNA reciprocal pairings (such as miR-99b-5p/mTOR, miR-34a-5p/PK3CB, miR-34a-5p/HIF1A, miR-34a-5p/IGFBP2, and miR-96-5p/MAPKAPK2) and differentially regulated signaling pathways (mTOR and VEGF) between AA PCa and EA PCa. Furthermore, the microRNAs and reciprocal pairings were successfully validated by RT-qPCR, western blot and IHC assays. By transfecting microRNA mimics/antagomir followed by BrdU-labeling assays in PCa cell lines, we further confirmed the functional impacts of these candidate microRNAs in PCa aggressiveness. In summary, our preliminary data suggest that miRNA-mRNA regulatory network plays a critical role in prompting African American aggressiveness and cancer disparities, and the candidate microRNA-mRNA pairings may serve as potential diagnostic/prognostic biomarkers in aggressive PCa.

**PG12 9:15 a.m.**

*Weblink: [https://us.bbccollab.com/guest/aa7ea84509794e10b575c004e08f0262](https://us.bbccollab.com/guest/aa7ea84509794e10b575c004e08f0262)*

**Optimizing Techniques for Feminized Seed Production In Cannabis sativa L.**

**Erik Lindsay**, Michael Foland, Carissa Jackson, Gabrielle Johnson, Dr. Papaiah Sardaru, Dr. Behnam Khatabi and Dr, Sadanand Dhekney

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

The localization of industrial hemp (Cannabis sativa with THC ≤ 0.3%) production in the United States has facilitated an ever-expanding market for its pharmacologically valuable cannabinoids, including cannabidiol (CBD). The value of such crops is dependent on the total percentage of female plants produced, as cannabinoids accumulate in higher concentrations in the inflorescence of female plants compared to male plants. Current methods for ensuring a high proportion of females, such as asexual/clonal propagation, micropropagation or physical removal of males in hemp fields, are resource, time and labor intensive. Alternatively, a high ratio of female plants can be obtained through the use of feminized seed. Feminized seed production involves treating female
hemp plants with plant growth regulators to induce sex reversal, leading to the development of male flowers and self-fertilization. Seed and seedlings produced from treated plants are predominantly female thereby eliminating the need for clonal propagation.

This study evaluated silver thiosulfate application on genetically female plants to induce the production of male flowers and, subsequently, feminized seeds. Female plants of hemp cultivar Diesel in the vegetative stage, were sprayed with silver thiosulfate (STS) at 0, 1.0 or 2.0 mM concentrations. Both 1.0 and 2.0 mM concentrations were effective in inducing male flowers. Preliminary results indicate that 2.0 mM STS spray produced the greatest efficacy in inducing a high proportion of male flowers and number of pollen pods produced by each masculinized flower. The researchers are currently maintaining the plants for ensuring seed development and maturity. Following seed harvest, they will be germinated to study the ratio of male and female plants. This study indicates that a single application of STS foliar spray is adequate to instigate the production of male flowers on female hemp plants. Future studies are needed to further elucidate the parameters of this effect as well as the viability of the pollen and seeds produced.

PG13 9:30 a.m.
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Physical Activity Interventions and Depression Outcome Measures Commonly Used for Individuals with Congestive Heart Failure: A Systematic Review

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1Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Individuals with congestive heart failure (CHF) frequently experience a decline in physical mobility, leading to depression, anxiety, and a decreased quality of life. These factors can further increase the likelihood of future hospitalizations, CHF symptom exacerbation, and increased mortality. Physical activity interventions are often prescribed after the initial diagnosis or as the condition worsens. The purpose of this systematic review was to examine the impact of physical activity interventions commonly used to rehabilitate individuals with CHF and to analyze the effect of these programs on depression and quality of life. A comprehensive literature search of three electronic databases (Medline, PUBMED, and CINAHL) and reference lists of relevant articles was performed. Key terms included “congestive heart failure, physical activity, and depression.” Independent data extraction, study quality, and risk of bias were assessed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and the Downs and Black Methodological quality assessment checklist. Twenty-one full-text articles were included in the final systematic review and 16 were identified as interventional studies. Approximately 3000 participants received interventions for CHF, with considerable methodological heterogeneity among the included studies. The most commonly performed physical intervention included moderate intensity aerobic exercise at 40%-70% of the maximum heart rate, performed 3-4 times weekly. Four outcome measures were primarily used to monitor depression levels in this population. Interventions incorporating aerobic physical activity contributed to both depression and quality of life improvement among persons with CHF.

PG14 8:45 a.m.
Weblink: https://us.bbcollab.com/guest/d37b9fc9d699440dadf0888ca11d47

Prolactin Treatment Reduces Lipopolysaccharide Induced Inflammation in Pregnant Mice

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According to the World Health Organization, an estimated 15 million births occur prematurely with no FDA approved drugs available for preterm labor. While premature birth (PTB) may result from various reasons, inflammation from bacterial infection is the most common. During infection, the immunologic response triggers release of tumor necrosis factor alpha (TNFα) and different interleukins, including IL-1β. To simulate infection, lipopolysaccharide (LPS) (50 mg/kg) was injected intraperitoneally into timed pregnant C57BL/6 mice. The peptide hormone prolactin was chosen for its ability to reduce inflammation caused by TNFα and IL-1β and based on previous data in the lab showing increased expression of prolactin related genes in LPS-challenged timed pregnant mice protected from PTB. Mice were treated with intraperitoneal injections of either prolactin (PRL) (50 mg/kg) or PBS 30 min prior to and 6 h following the administration of LPS. While 100% (20 of 20) PBS control mice challenged with LPS delivered prematurely, only 20% of PRL treated mice (2 of 10) developed premature labor and delivery. Western blot analysis of harvested placentas showed a 2-fold decrease in IL-1β and 1.5-fold decrease in TNFα with PRL treatment. In a second line of investigation, LPS-challenged
timed pregnant C57BL/6 mice were rescued with intraperitoneal pamipexole (50 mg/kg) and had reduced placental inflammatory cell infiltrates. This dopamine agonist reduces central levels of prolactin, leading to increased prolactin in the periphery, resulting in prevention of PTB. The data presented here suggest that PRL and PRL secretagogues represent potential novel tocolytic agents for inflammation driven PTB.

PG15
Rising from the Floor in Persons with a Transtibial Amputation: A Pilot Study

D, Klima, D¹, Oakley, B¹, Nicholson, C¹*, Banas, J¹, and Rothschild, R²
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Falls are a major concern for persons wearing a prosthesis. Persons can remain on the floor for several hours and suffer medical conditions such as dehydration, pressure ulcers, or hypothermia. Little is known about the ability to rise from the floor among persons with a prosthesis. The aims of this pilot study were to 1) Identify movement strategies and timed performance scores demonstrated when rising from the floor among persons with a transtibial prosthesis and 2) Examine concurrent validity of the timed supine to stand test. Eleven subjects (9 male; mean age 58.7 +/1 12.7 years; BMI = 34.8 +/- 9.3 kg/m2) with a unilateral transtibial amputation participated. Subjects completed a demographic profile and the Activities-specific Balance Confidence (ABC) Scale. In a task circuit, subjects performed a timed floor rise supine to stand test and were observed for common motor strategies. Subjects also performed the: Timed Up and Go (TUG) Test and the Short Physical Performance Test (SPPT). Data were analyzed using descriptive statistics and Pearson product correlation for variables relationships. The mean time to rise from the floor was 10.6 +/- 5.6 seconds. Timed supine to stand performance was significantly (p < .05) correlated with: age (r = 0.62), ABC scores (r = - .72), and performance on the TUG (r = .64) and SPPT(r = - .67). Six subjects (54.5%) required the use of a device (chair) to stand and seven (63.6%) initially flexed the prosthetic limb in half-kneeling to push to rise. Findings of this study indicate that the supine to stand task is related to physical performance and balance confidence among persons with a transtibial amputation. A predominant strategy used to rise included the half-kneel position with the prosthetic limb leading. Future directions for research should extend to persons with a transfemoral amputation. Findings of the pilot study support preliminary concurrent validity of the supine to stand test for persons with a transtibial amputation. Findings offer practitioners strategies to teach patients to rise with a transtibial prosthesis.

PGB16 9:15 a.m.
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Structure Activity Relationship Study and Biological Investigation of Novel N-Substituted Benzamide Enaminones as Potential Anticonvulsant Agents

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Drug resistant epilepsy (DRE) is becoming more of an increasing burden in the epilepsy community. Statistics show that approximately 35% of epileptic patients are resistant to current treatment. Extensive research has been done and published to determine the overall therapeutical properties of analogs containing the cyclic enaminone system. From the fluorinated benzamide drug library, the lead enaminonone THA40, was shown to be effective in the DRE 6Hz 44mA rodent seizure model with minimal neurotoxicity. A comprehensive structure activity relationship (SAR) exploration on THA40 was performed on THA40 by introducing various electron-withdrawing groups with the goal of determining the chemical components that will improve the overall efficacy and safety profile. All designed analogs passed the test for drug-likeness as it relates to cLogP values, LogBB coefficients, molecular weight and hydrogen bonding donors and acceptors. SAR studies and anticonvulsant evaluation of our substituted N-benzamide enaminones have shown 5 out of the 15 analogs tested were shown to protect 75-100% of animals in the MES and 6 Hz 44mA model for DRE at different doses and time intervals. For the in vitro cell-based mechanistic electrophysiology studies, a similar activity pattern was observed where modifications on the aromatic ring changes the channel blocking specificity of the enaminone benzamide analogs. Compounds with a trifluoromethyl (CF₃) or trifluoromethoxy (OCF₃) substitution on the para position seems to have an affinity for blocking the sodium channels. Conversely, analogs with a trifluoromethyl substitution on the meta position show greater inhibition for the calcium channels. The docking studies also shows that the new analogs interact with the sodium channel by three important hydrogen bonds between the hydrogen bond donors and acceptors on the analogs and two important amino residues in the open form sodium channel crystal structure, Lys166 and Tyr169. Current results indicate that a novel class of enaminone benzamides possess anticonvulsant properties. The study concludes that increased activity is observed in various position of the aromatic ring with a fluorine and CF₃ group respectively.
Student Pharmacists’ Perceptions of Online Learning: Internal, Instructor, and Course Factors

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This study will look to identify factors and stressors of virtual education during COVID-19 pandemic and to determine opportunities to improve delivery of virtual education during public health emergencies. A survey was developed based on modified Likert-scale and open-ended questions. Questions were developed and adapted from a study published in Engagement Matters journal and include internal factors (motivation, learning style, etc.), course factors (content, structure, management, etc.), and instructor factors (technology savvy, engagement, etc.). Forty-five out of 122 students responded, yielding 36.9% response rate. For internal factors, 64.4% agree or strongly agree having previous online learning experience is helpful. Fifty-six percent agree or strongly agree that it is more difficult to stay motivated in online learning, and 57.8% agree or strongly agree that increased distractions make it harder to stay on task. Seventy-three percent agree or strongly agree having technological resources needed. For course factors, majority disagree or were neutral regarding courses allowing for real-world implementation practice. Forty percent agree or strongly agree, whereas 33.3% disagree or strongly disagree if online courses used methods allowed for long-term retention. For instructor factors, 50% agree or strongly agree professors had adequate online training to facilitate the course. Overall perception showed 50% of students disagree (22.2%) or strongly disagree (26.7%) that online learning enables and facilitates abilities and skills. There was a split preference, where 31.1% preferred a virtual platform, 35.6% preferred an in-person classroom, and 33.3% preferred a hybrid. It appears that previous online learning experience is helpful, yet more difficult to remain motivated and stay on task due to distractions. Students and professors may have had technological resources and adequate training, respectively, for virtual learning. There was no clear majority on preference to have in-person, online, or a hybrid. Future research could categorize students by professional years and add other health profession students to allow for generalizability of results.
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. When patients have lack of response to two or more antiepileptic drugs, they are considered to have pharmacoresistant (drug-resistant) epilepsy, according to the International League Against Epilepsy. Because of this ongoing epidemic, there is a need for the development of novel therapeutics to treat epilepsy. Research efforts in a UMES lab engages in early drug design and development of novel anti-convulsant analogs as potential agents for the treatment of drug-resistant and generalized epilepsy. Previously, the researchers employed a lead-based drug design strategy which led to the discovery of enaminone analog IAC-17 with greater efficacy and potency for the maximal electroshock seizure animal model (mimics human generalized tonic-clonic seizures). The overarching aims of the proposed research project are to (Aim 1) continue lead-based optimization strategies on enaminone analog IAC17 to improve efficacy and drug half-life, (Aim 2) conduct target identification studies on active analogs in in vivo models to elucidate the molecular target, and (Aim 3) conduct target-based drug design and development studies on anti-convulsant novel fluorinated enaminone analogs. By performing these aims, the researchers expect to obtain novel therapeutics that are not only efficacious, with relative high potency and minimal to no toxic effects, but with a known mechanism of action.

PG20 9:15 a.m.
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The Impact of a One-Day Comprehensive Interdisciplinary Bone Health Workshop On Bone Health Knowledge and Self-Efficacy In Physical Therapists

Ariana Maxwell*, Abigail Sauber, Michelle Poulopoulos, Maria Stratakos, Dr. Cindy H. Gill, and Dr. Mary E. Layshock
Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD

Osteoporosis is the most common bone disease worldwide and is characterized by a marked decrease in bone mass and strength leading to fragility and increased fracture risk. Two in four women and one in four men over the age of 50 will experience a fracture due to osteoporosis. Unfortunately, 84% of older adults who have experienced a fracture are not tested or treated for osteoporosis. The aim of this study was to determine the impact of a comprehensive interdisciplinary bone health workshop for physical therapists (PTs) on their knowledge and self-efficacy regarding education, screening, and treatment of individuals with potential or diagnosed poor bone health. The UMES Department of Physical Therapy hosted a one-day virtual workshop for PTs. The topics, presented by experts in bone health, were epidemiology, etiology, pathophysiology, diagnosis, medical and pharmacological treatment, bone density testing, nutrition and lifestyle, PT interventions including site specific exercises, balance and fall prevention, and resources for patients and PTs. PTs (n=14) were tested on knowledge and self-efficacy regarding bone health. Testing was administered before (pre-), 3-4 weeks after (post-) and 6-7 weeks after (follow-up) the workshop. They also completed a demographic survey; they had practiced for a mean of 22 yrs (range 1-43 yrs). PTs demonstrated high levels of knowledge pre-test for over 57% of the knowledge assessment items. On the follow-up assessment, PTs demonstrated improvement in answering questions about osteoporosis risk factors, incidence, diagnosis and signs/symptoms, with high levels of knowledge for 77% of the questions. PTs reported higher levels of self-efficacy post workshop, with more PTs feeling “confident” and “very confident” in the following aspects of patients’ bone health care: education (28% pre- to 92% post-test), screening (14% to 83%) and treatment (36% to 83%). These results indicate that prior to the workshop, PTs did possess a solid foundational knowledge regarding bone health and osteoporosis but did not have self-efficacy regarding educating, screening, and treating individuals with potential or diagnosed poor bone health. The comprehensive, interdisciplinary workshop improved confidence and increased knowledge regarding bone health among physical therapists. PTs with confidence and knowledge regarding bone health have the ability to promote optimal bone health and prevent unnecessary and debilitating fractures which have a negative impact on the health and mobility of individuals in our communities.

PG21 9:30 a.m.
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The Impact of COVID-19 and Diabetes Risk Associated with Fast Food Consumption Among College Students Attending Two Separate Universities

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Overweight and obese individuals had a 10% increase in eating at fast-food establishments during the pandemic. College students may potentially be at risk for Type 2 Diabetes due to frequency of fast-food consumption. A cross-sectional study found that 98.5% of college students consume fast-food. The aim of this study is to determine the impact of COVID-19 on food behaviors associated with fast food consumption in college students from two neighboring
universities and how this may impact their risk for Type 2 Diabetes. The study consisted of 399 Salisbury University (SU) students and 118 University of Maryland Eastern Shore (UMES) students. Participants were provided two electronic distributed survey forms. University of Maryland Eastern Shore students are at a 56% higher risk of developing Type 2 Diabetes ($P = <.001$). Frequency of purchasing of fast food due to the impacts of COVID-19 was significant among SU students ($P = <.001$). There was a significant difference in BMI classification, with 61% of UMES students having higher BMI scores compared to 54% of SU students ($P = .002$). Thirty-one percent of UMES students and 21% of SU students had an immediate family member with a diagnosis of diabetest. University of Maryland Eastern Shore students are at a higher risk for Type 2 Diabetes. Salisbury University student’s diabetes risk may be more likely related to modifiable behavioral risk factors such as frequency of fast-food consumption while the Type 2 Diabetes risk among UMES students, although higher, may be more likely due to unmodifiable risk factors such as family history and ethnicity.

PG22 8:45 a.m.
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The Impact of Shoe Wear on Trunk and Lower Extremity Muscle Activation: A Systematic Review

Kylie Archibald1*, Evann Slaughter1, Margaret Lenz1, Miguel Pereyra1, and Dr. Michael Rabel1
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In the United States walking and running are common recreational activities used to maintain a healthy lifestyle. In order to promote long-term participation and avoid musculoskeletal injuries, proper footwear must be considered. The type of shoe can create an environment that has a direct impact on muscle activity as well as joint reactions and trunk/core control. The purpose of this systematic review was to examine the effects of shoe wear, or lack thereof, on trunk and lower extremity muscle activation during gait activities. A comprehensive literature search of three electronic databases (Medline, PUBMED, and CINAHL) and reference lists of relevant articles was performed. Key search terms included “Electromyography, muscle activation, walking, running, and barefoot.” Independent data extraction, study quality, and risk of bias were assessed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and the Downs and Black Methodological quality assessment checklist. Seventeen full-text articles were included in the final systematic review. Barefoot or minimalist conditions increased gluteus maximus activation during swing, increased neck and paraspinal activation throughout the gait cycle, and increased activation of paraspinals with advancing gait speeds. The same shoe conditions also reduced the activation of tibialis anterior and increased activation levels of the gastrocnemius, soleus and the peroneal musculature. Muscle activation varied when comparing minimalist shoes or barefoot conditions with more supportive shoe wear. In general, muscle activation decreased as shoe stability increased. Understanding the influence of shoe wear on muscle activation may assist in preventing injury and maintaining mobility.

PG23 9:00 a.m.
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The Timed Supine to Stand Test in Older Adult: A Systematic Review

Nicholas Barbely,1 Shannon Collins,1* Christopher Kunkel,1 Alexandria Ramos,1 and Dr. Dennis Klima1
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Fall episodes among community-dwelling older adults are a major public health concern. While studies have focused on intrinsic and extrinsic causes of falls, less is known about the ability to rise from the floor. The purpose of this systematic review was to examine descriptive and metric properties of the timed supine to stand test among older adults. A literature search was conducted using the following data bases: PubMed, PEDro, Cochrane Library, CINAHL, and Ovid. Key terms included “supine” and “stand” with “floor recovery” and “floor transfer” added to the extended search. Inclusion criteria mandated a timed floor rise test starting from the supine position, with clinometric properties analyzed for test administration, validity, and reliability. Studies were reviewed for bias and evidence level with PRISMA, JBI Critical Appraisal and US Agency for Health Care Policy instruments. Seven studies were retrieved following an initial funnel review of 48 papers. Mean test performance ranged from 3.9 to 25.1 seconds among 252 total participants. The grand mean time was 7.8 seconds. The timed supine to stand test demonstrated concurrent validity with age, gait velocity, sit to stand activity and balance confidence. Discriminate validity was supported by slower performance compared with younger participants. Test-retest reliability was high. In general, bias was minimized among the seven studies though procedural differences varied in test administration. The timed supine to stand demonstrates sufficient metric support for clinical use with older adults. Technical differences in test administration warrant additional refinement to finalize a gold standard test for clinical use.
Marine ecosystems are encountering increasing stress from human induced climate change and anthropogenic activities. These stressors can affect how individual organisms’ function, change ecosystem features or variables, and alter the structure and stability of food webs. Thus, determining food web structures are important to establish a stable ecosystem. With the use of trophic dynamics, an accurate assessment of how ecosystems will respond to anthropogenic activities can be obtained. As a result, proper management plans can be developed that have potential benefits to ecosystems and ecosystem services. Gut content analysis provides the understanding of organism feeding patterns and quantitative assessments of food habits. Stable isotopes provide both source information by examining carbon isotopes as well as trophic level information by examining nitrogen isotopes. Fatty acids are useful biomarkers in food web dynamics due to their biological specificity and their ability to be transferred from primary producers to higher trophic levels without change. Finally, mercury analysis was used as a supportive trophic level tracer in this study since it has been proven to bio-magnify within food webs. The objectives of this research were to determine any spatial/temporal variations in the gut contents, stable isotopes, fatty acid, and mercury content of four juvenile MCB fish species. An additional objective is to determine the trophic positions of Summer Flounder, Bay Anchovy, Norfolk Spot, and Silver Perch and the food web structure of the MCBs.

Visual Motion Capture and Analysis

Colin Donovan SPT,CSCS*, Allyson Dover SPT and Dr. Les Keniston
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Visual motion capture and analysis technology is becoming more frequent in a variety of fields of research. Accurate analysis of human kinematics is vital to the field of physical therapy in order to determine subtle movement pathologies or evaluate high-level performance that would allow athletes a safe return to sport. The Doctor of Physical Therapy Department at University of Maryland Eastern Shore operates a state of the art three-dimensional motion capture system that can be used to analyze kinematic data and determine deficits in normal physiological motion. The process and technology of visual motion capture, including post-capture processing, editing, and software-based adjustment of movement vectors will be demonstrated. Future research using visual motion capture will apply the kinematic analysis to subjects with varying levels of experience in resistance training to determine the movement patterns and asymmetries associated with motor learning of new tasks.
Opioids, A Double Edges Sword.

Shahin Azadikhah, PharmD Candidates 2021, Khaled Hasan, MD, MS, Ph.D.
School of Pharmacy and Health Professions, University of Maryland Eastern Shore, Princess Anne, MD 21853

Opioids are a class of drugs or compounds available as natural opium-derived, semisynthetic, or synthetic substances that affect the body’s nervous system to reduce the pain transmitted through the nerves and pain receptors. The opioid crisis and overdose deaths have been on the rise significantly since 1999. From 2013 to 2019, the synthetic opioids other than methadone overdose death rate increased by 1,040%, from 1.0 to 11.4 per 100,000 age-adjusted (3,105 to 36,359). Death associated with psychostimulants rose from 1.2 (3,627) in 2013 to 5.0 (16,167) in 2019. Overdoses involving all opioids killed nearly 50,000 people in 2019, and almost 73% of those deaths were related to synthetic opioids such as fentanyl, cocaine, and heroin. Regardless of all the adverse side effects, opioids use remains highly beneficial and advantageous as anxiolytic and sedative in many painful situations, including pain related to post-surgery, cancer, and anesthesia. These qualifications of opioids make them a double-edged sword; thus, physicians/providers must use their clinical and professional judgments before prescribing any opioids to make sure that the benefits outweigh the risk. This poster presentation will briefly discuss the current opioids use, dose adjustments for kidney and liver impairment, and management of opioid overdose for health care.
Effect Of Different Herbicides On Glutathione-S-Transferase (GST) Activity In Marestail (Conyza canadensis (L.) Cronq.)

Fancy Jerop Kipyego*, Earle Canter, and Dr. Naveen K Dixit

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

Two independent experiments were conducted during the 2018-2019 season using greenhouse conditions. Twenty different treatments of herbicides combinations (T1: Glyphosate (Buccaneer 5 Extra/40 Gallon), T2: Glyphosate (Buccaneer 5 Extra/10 gallon), T3: Dicamba (Banvel), T4: 2,4D (Defy LV-6), T5: Sulfantrazone and Imazethapyr (Authority), T6: Paraquat (Parashot), T7: Metribuzin (Tricor DF), T8: Sulfometuron methyl (Alligare SFM 75), T9: Glufosinate-ammonium (Interline), T10: T1 (Glyphosate/40 gallon) + T3 (Dicamba), T11: T2 (Glyphosate/10 gallon) + T3 (Dicamba), T12: T2 (Glyphosate/10 gallon) + T4 (2,4 D), T13: T3 (Dicamba) + T4 (2,4 D), T14: T2 (Glyphosate/10 gallon) + T3 (Dicamba) + T4 (2,4 D), T15: T6 (Paraquat) + T3 (Dicamba), T16: T6 (Paraquat) + T4 (2,4 D), T17: T6 (Paraquat) + T3 (Dicamba) + T4 (2,4 D), T18: T7 (Metribuzin) + T4 (2,4 D), T19: T7 (Metribuzin) + T2 (Glufosinate/10 gallon), T20: T7 (Metribuzin) + T4 (2,4 D) + T3 (Dicamba) were used to understand the mechanism of non-targeted site herbicide resistance in Marestail. Herbicide treatments at the flowering stage in Marestail showed different responses in terms of reproductive success or seed setting. Based on GST activity, we observed three different strategies for non-targeted herbicide resistance in Marestail. I: Single herbicide application led to continuous increase in GST activity, II: Double herbicide mixture caused initial increase in GST activity followed by a significant decline, and III: A triple mixture of herbicide showed little increase in GST activity.
Evaluation of Virulence Genes of *Salmonella* Recovered from Seafood

Adib M. Adnan1,2, Dr. Salah Elbashir2, Dr. Fawzy Hashem3, and Dr. Salina Parveen2

1 College of Computer, Mathematical and Natural Sciences, University of Maryland, College park, MD 20742
2Department of Agriculture, Food, and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

*Salmonella* causes 1.2 million cases of non-typhoidal salmonellosis and 450 deaths in the United States (U.S) annually. During recent decades, per capita seafood consumption has increased in the U.S. It has also been reported that *Salmonella* may be associated with seafood such as shrimp, catfish and tilapia. However, adequate information is not available about the virulence genes of *Salmonella* recovered from seafood. The objective of this study was to evaluate virulence genes of *Salmonella* recovered from seafood obtained from four retail stores located on the Eastern Shore of Maryland. A total of 127 confirmed *Salmonella* isolates recovered from frozen catfish, shrimp, and tilapia samples were analyzed for the presence of four virulence genes (*invA, pagC, spvC*, and *spvR*) using Polymerase Chain Reaction (PCR). Chi-square test was used to determine the significance differences (*p<0.5*) in the presence of virulence genes among samples. Seventy-three percent, 76% and 71% of isolates recovered from catfish, shrimp, and tilapia, respectively, were positive for *invA*. *PagC* was detected in 59%, 71%, and 74% of catfish, shrimp, and tilapia, respectively. Sixty-eight percent of catfish, 88% of shrimp, and 74% of tilapia contained *SpvC*. *SpvR* was found in 59% of catfish, 51% of shrimp, and 48% of tilapia. There were no significant differences in the presence of virulence genes among samples.

The results showed different levels of antibiosis against test organisms including *Bacillus subtilis*, *Escherichia coli*, Staphylococcus epidermidis, Acinetobacter baylyi, *Erwinia carotovora*, and Enterobacter aerogenes. Data reveals that the potential of soil microbes as a source for extracting novel antibiotics.

**Exploring Antibiotic Producing Streptomyces from Soil in Maryland**

Brittney Whitt1, Jennifer Ossai1, and Dr. Behnam Khatabi1,2

1Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853
2Department of Agriculture, Food Science and Resource Science, University of Maryland Eastern Shore, Princess Anne, MD 21853

Streptomyces is a gram-positive bacteria that is found in soil, with the ability to inhibit the growth of other bacteria and fungi. Streptomyces has been studied over the years and known for producing antibiotics and exploring the novel source of novel antibiotics. The goal of current research is to explore the impact of novel compounds extracted from soil Streptomyces on test organisms including bacteria and yeast. The soil sample collection was collected from location in Agricultural Research Service (ARS), Beltsville, MD. Based on different morphological variations of Streptomyces colonies, a total of 16 isolates were selected, purified and preserved. Isolated Streptomyces showed strong antibacterial and antifungal activity in primary screening. The results showed different levels of antibiotics against test organisms including *Bacillus subtilis*, *Escherichia coli*, *Staphylococcus epidermidis*, *Acinetobacter baylyi*, *Erwinia carotovora*, and *Enterobacter aerogenes*. Data reveals that the potential of soil microbes as a source for extracting novel antibiotics.

**Nanotechnology for the Management of Multiple Plant Pathogens**

Macdonald Mutakyawa* and Dr. Naveen K Dixit

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

The role of nanotechnology in agriculture is promising and can be used to manage multiple plant pathogens. The researchers used nanoparticles to manage insects, fungal and bacterial plant pathogens. Results showed the promising effects of nanoparticle [nano-zinc-oxide (NZO)10-30 nm, 40-60 nm, and 60-100 nm] in management of soybean looper [*Chrysodeixis includens* (Walker)], *Fusarium oxysporum* f.sp. *lycopersici*, *Fusarium solani*, and *Botrytis cinerea*. In vitro work showed 80 to 100% mortality of first, second, and third instar stages of soybean looper within 5 to 24 hr using NZO. Similarly, 25 mM NZO concentration completely inhibited the growth of *Fusarium oxysporum* f.sp. *lycopersici*, *Fusarium solani*, and *Botrytis cinerea*. Moreover, NZO concentrations above 5 mM also inhibited the spore formation in *Botrytis cinerea*. NZO (10-30 nm) successfully managed fire blight (*Erwinia amylovora*) in apple, bacterial leaf spot (*Xanthomonas campestris pv. pruni*) in peach, and *Escherichia coli* using *in vitro* conditions. The researchers also observed the positive effects of NZO on soybean root growth, while above ground plant parts showed severe toxicity at 25 mM concentration.
Surveying Viral Pathogens Infecting Soybean On The Delmarva Peninsula

Destiny T. Parker¹, Dr. Erik M. Lindsay², Dr. Papaiah Sardaru³, Dr. Sadanand Dhekney² and Dr. Behnam Khatabi¹,²

¹Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853, USA, ²Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Soybean (Glycine max L.) is a major crop on the Delmarva Peninsula of the United States, and in 2019, the crop in Maryland alone was worth $173.5 million. The ability to maintain high yield is critical to the sustainability of Delmarva soybean farmers. However, several fungal, bacterial and viral diseases as well as plant parasitic nematodes have the potential to reduce soybean quality, yield and profits. Current research aims to identify, characterize the distribution of soybean infecting viruses in the Delmarva region. During 2017-2020, a total of 184 soybean samples displaying viral disease symptoms, including mosaic, mottling, chlorosis, stunt, yellowing, and vein necrosis were collected from different fields in geographical regions of Maryland, Delaware and Virginia. Virus identification was carried out using the enzyme-linked immunosorbent assay (ELISA) serological assay. Results showed the most common viruses of soybean with the high infection rates include the Soybean Mosaic Virus (SMV, 19.35%), Soybean vein necrosis virus (SVNV, 10.85%), and Alfalfa mosaic virus (AMV, 1.61%) Further diagnostic confirmation of positive preliminary findings required using molecular approaches.
Creation of a Bidirectional Referral System Using Prescribewellness to Improve Diabetes and Hypertension

Dr. Yen Dang1 and Dr. Lana Sherr1
1Department of Pharmacy Practice, University of Maryland Eastern Shore, Princess Anne, MD 21853

Only 24% of hypertensive patients or diabetics are medication adherent, and 25% have routine visits with their primary care provider. Prescribewellness is a software program that allows pharmacies to track non-compliant patients. The use of Prescribewellness to identify high-risk patients and improve disease state management is limited. This project determines if Prescribewellness can be used to create a bidirectional referral system between patients and providers to bridge the gap for medication compliance and improve A1c and blood pressure. A pilot, prospective study was conducted at 11 community pharmacies in Maryland. Eligible patients included those who had a new prescription for diabetes or hypertension, were at risk for either disease, and had a diabetes or hypertension medication refill rate of 75% or less on Prescribewellness. Patients were counseled by pharmacy students on the importance of medication compliance and were referred to their provider for follow-up. Over 4 years, 1,767 patients were recruited with an average diabetes and hypertension medication compliance score of 57.2% and 50.8%, respectively. The population was predominantly female and Caucasian. Baseline A1c was 6.54% and blood pressure readings were 135/94 mmHg. There were 985 bidirectional referrals between patients and providers and all medication compliance rates improved. At the end of 3 months, the A1c was 6.96% (P = 0.56) and blood pressure decreased to 130/81 (P = 0.28). Creation of a bidirectional referral system using Prescribewellness ensures that diabetics and hypertension medications are taken on a routine basis and allows for improvement of health outcomes.

Flipped Classroom Teaching: What Have We Learned?

Dr. Madan K Kharel*
School of Pharmacy and Health Profession, Department of Pharmaceutical Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

The flipped classroom has been utilized across disciplines to bolster student engagement in the learning process. A typical flipped classroom involves two components: students go through learning materials before joining the class; students apply the concepts they have learned in the in-person class session and the instructor addresses students’ questions. The study piloted online flipped classrooms in subsections of two courses. Students were provided with pre-recorded lectures several days before the class. The class time was entirely used in active learning, quizzes, and follow-up discussions. When compared student test performance on the content taught traditionally and flipped approach, researchers did not find a significant difference. However, the majority of students favored flipped teaching. While students perceived flipped teaching to be helpful for exam preparation, enhanced discussions, and interactions, their perception of flipped teaching largely remained unchanged before joining in and after the completion of courses.
fragment B with 3.3kb) for each viral genome and cloned them into an intermediate vector pCR4. After restriction enzyme digestion and ligation using the unique combination sites both fragments were assembled to have the entire virus sequence in the pCR4 vector. Sequence analysis showed the full-length genome of BVG. The full-length cDNA clone of BVG will be inserted into the pCB301 binary vector under the control of enhancing 35S, ribozyme and NOS terminator. At present, we are optimizing protocols for biolistic bombardment using the BVG infectious clone to study virus-host range as a part of biological characterization.

**OF4 1:45 p.m.**  
**Weblink:** [https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab](https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab)  

**Optimizing In Vitro Culture Techniques for Genetic Improvement of Industrial Hemp (Cannabis sativa L.)**  
**Dr. Sadanand Dhekney**, Gabrielle Johnson, Carissa Jackson, Erik Lindsay, Michael Folan, Dr. Papaiah Sardaru and Dr. Behnam Khatabi  
Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, Maryland 21853, USA.

The formulation of regulations for the development of industrial hemp as a cash crop in the United States has led to a rapid expansion of hemp acreage nationwide. Industrial hemp is cultivated for three main purposes, fiber, seed that is processed for use in food, health products and cosmetics and the extraction of cannabinoids for use in medicinal purposes. The plant breeding and biotechnology program at the University of Maryland Eastern Shore is involved in the establishment of an industrial hemp germplasm, screening hemp cultivars for their suitability for production on the lower eastern shore and developing in vitro culture techniques to complement conventional breeding approaches for hemp genetic improvement.

In the current study, various parameters influencing micropropagation include explant type and development stage, macro- and microelement concentrations, and growth regulator combinations were studied to optimize efficient in vitro regeneration protocols for industrial hemp cultivars used in cannabinoid production. Among the various basal salt composition studied, optimum growth and shoot proliferation was observed on Drivers Medium containing varying levels of benzyl amino purine (BAP) and thidiazuron (TDZ) growth regulators. Normal plant growth and development was observed from in vitro proliferated shoots. The study is currently studying the influence of varying levels of individual macrolelements on improving shoot proliferation response of hemp cultivars. The development of micropropagation and other in vitro protocols should enable rapid propagation of genetically uniform, healthy plants that can be used for cannabinoid production in the hemp industry.

**OF5 2:00 p.m.**  
**Weblink:** [https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab](https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab)  

**When Phyto-Chemistry Meets Material Science**  
**Dr. Victoria V. Volkis**  
Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Plants, seafood waste, algae, specialty crops and medical herbs are used widely in food industry or as food supplements. Those fruits, herbs and shells are well known due to high content of antioxidants, essential oils, terpenes, or chitin. However, very limited non-food related applications were ever developed. A research lab works on the edge of phytochemistry and polymer and material science to widen applications of phytochemicals and natural polymers, in such emerged fields of science and technology as carbon dioxide sequestration, antifouling protection, replacement of danger pesticides, and more. This short presentation will cover one application, illustrating the advantage of interdisciplinary approach to traditionally agricultural problems.

This work is supported by the AFRI-EWD-REEU program, grant no. 2020-69018-30655, from the U.S. Department of Agriculture, National Institute of Food and Agriculture, and by USDA-NIFA Evans-Allen grant at UMES.
A Narrative Synthesis of the Dimensions of Authentic Leadership as Applied to Leaders’ Dual Concern for Self and Concern for Others within the Context of Conflict Management Approaches and Follower Well Being

Theresa Cardillino* and Dr. Prince Attoh
Department of Social Sciences, Organizational Leadership, University of Maryland Eastern Shore, Princess Anne, MD 21853

The purpose of this narrative synthesis is to examine the construct of authenticity as it applies to the fields of leadership and conflict resolution. The rationale for this study is the need to understand how authentic leadership impacts conflict management and followers’ well-being. Authenticity is a construct attributed to the ancient Greek Stoics, and throughout history, has received attention as a leadership solution to declining societal values in times when society needs genuine leaders with morally appropriate perspectives to solve emerging conflicts. This synthesis summarizes the theory of authentic leadership and its four dimensions: balanced processing, internalized moral perspective, self-awareness and relational transparency. Both quantitative and qualitative research studies are examined to answer the four research questions that form the objective of this analysis. What do the four dimensions of authentic leadership really mean in contemporary society? How do the four dimensions of authentic leadership impact a leader’s dual concern, that is, concern for self and concern for others? How do the four dimensions of authentic leadership impact a leader’s approach to conflict management? How do the four dimensions of authentic leadership impact follower well-being? Leadership impacts whether conflict turns destructive or results in positive growth. Leaders must have genuine concern for followers in order to implement positive outcomes. Although conflicts are inevitable in organizations, the positive dimensions associated with authentic leadership can promote constructive conflict management and follower well-being. Directions for future multidisciplinary research are proposed combining the fields of leadership, conflict management and healthcare.

Amyotrophic Lateral Sclerosis Disease Progression: The Usefulness and Limitations of Functional Outcome Measures

Sheila Amini*, Margaret Blount, Emily Hawkins, Paige LeVora, Kevin O’Donoghue, Zach Robertson, Natalie Speth, Chris Tingle, Sam Yim, Dr. Michelle J. Sanfilippo, Dr. Mary E. Layshock and Dr. Leslie P. Keniston
Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Amyotrophic Lateral Sclerosis (ALS) is a fatal disease with progressive degeneration of motor neurons. Our objective was to describe and understand the functional decline throughout ALS progression, including fall risk. Data was collected from retrospective chart reviews from a multidisciplinary clinic (“local patients”). Local patient data was compared to a large database from ALS clinical trials (PRO-ACT). Local patients were found to be similar to the PRO-ACT data in onset type, chronicity of progression of ALSFRS-R, and chronicity of GMS for both limb- and bulbar-onset patients. The results of this study can thus be generalized. The average gait velocity was <1.2 m/s at all times; slow at diagnosis, then increased, then declined again. Since diagnosis, average TUG was >13.5s and remained grossly unchanged. The 13.5s TUG fall-risk cut-off relates to a 40 on the ALSFRS-R and an 8 on GMS. Relating the TUG and ALSFRS-R/GMS gives insight into fall risk. Physical tests are limited to patients able to perform them, limiting analysis beyond individual use in mid- to later-stages of ALS disease progression. Information from subjective measures can be used when patients can no longer perform physical tests. Patients with ALS and their caregivers benefit from PT management, including fall prevention.

An Investigation into finding a Relationship between the benchmarks of 2020 Standards of Technological and Engineering Literacy and of Next Generation Science Standards, Common Core State Standards for Math and Common Core State Standard for English Language Arts

Ipsita Ghosh, CTED Graduate Studies
Department of The Built Environment, University of Maryland Eastern Shore, Eastern Shore, Princess Anne, MD 21853

The purpose of this study is to validate a prior study...
on Standard for Technological and Engineering Literacy (STEL) reported in 2020 by ITEEA and identify additional matching benchmarks from Next Generation Science Standards (NGSS), Common Core State Standards (CCSS) Math and English Language Arts to the 2020 STEL standards and benchmarks. The approved benchmark matrix in ITEEA (2020) includes 118 matches between STEL and NGSS, 79 to CCSS Math, and 119 to CCSS ELA. Using a quantitative research method, two teams of three reviewers scored the degree of matching between different sets of standards proposed in the current crosswalk matrix. Each reviewer team consists of a Technology and Engineering classroom teacher, district or state supervisor, and university professor. The six dependent variables used are the accepted benchmark scores from current study of NGSS, Math and ELA, STEL to NGSS, STEL to CCSS Math, and STEL to CCSS ELA scores. The study indicates that compared to the 2020 study, there are 21 newly accepted matches found between STEL to NGSS, 20 to Math, and 13 to ELA. The current study's overall findings reveal 136 matches between STEL to NGSS, 99 to Math, and 129 to ELA. The results indicate an increase in matching benchmarks for all three standards to STEL. The newly matched benchmarks have been published in the ITEEA online database to help in curriculum and lesson plan development and validate the prior connection of STEL standards to STEM education and broader education goals in general.

OG4  1:45 p.m.
Weblink: https://us.bbcollab.com/guest/eb49f06dfdd84fecn8e6d423d24445c9

Isolation, Identification and Biological Characterization of Soil Streptomyces in Controlling Foodborne Pathogens

Jennifer Ossai1, Dr. Madan Kharel2, Dr. Salina Parveen3, and Dr. Behnam Khatabi1,3
1Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, MD 21853.
2School of Pharmacy and Health Professions, University of Maryland Eastern Shore, Princess Anne, MD 21853.
3Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853.

Food-borne diseases are a global issue, with major negative economic impacts. Vibrio, Listeria, and Salmonella are among the major and most common foodborne bacterial pathogens. Currently, the use of antibiotics to treat food-borne diseases is becoming ineffective due to emerging antibiotic resistance. Therefore introducing novel antimicrobial compounds with novel antibacterial activity is in high demand. Streptomyces spp., major producers of antimicrobial agents with a diverse range of biological activities such as antibacterial and antifungal activity are often considered antibiotic factories. The overall goal of the current project was to explore soil microbial communities with emphasis on Actinomycetes spp., to identify strains that produce antibiotics against foodborne pathogens. We isolated 35 actinomycetes from soil collected from USDA-ARS (Beltsville, MD). Metabolites produced by 11 isolates showed antimicrobial activities toward common foodborne pathogens Vibrio vulnificus and Vibrio parahemolyticus. High Resolution-Mass Spectrometry (HRMS) analysis of crude extracts mostly indicated new metabolites except for a Streptomyces sp. 6K that produced a metabolite with exact MS of polymyxin B. Further characterization of the bioactive metabolites is underway.

OG5
Blockchain and Democratic Elections
Sabo Joseph

OG6  2:15 p.m.
Weblink: https://us.bbcollab.com/guest/eb49f06dfdd84fecn8e6d423d24445c9

Career Technical Education Partnerships: Facilitations and Barriers

Jerry Kelley1*
1* M.Ed., BMI University of Maryland Eastern Shore, Princess Anne, MD 21853

The purpose of this study will be to evaluate the relative strength in partnership development in local Career Technical Education (CTE) programs. CTE programs share a common challenge in their efforts to develop and strengthen their partnerships. Partnerships are not easy to cultivate and sustain. As CTE programs align new and existing programs with college and career ready standards, CTE programs of study engagement with schools, communities, industry, and post-secondary institutions will be increasingly necessary. Research regarding CTE partnership facilitations and limiting barriers can provide individual teachers and administrators specific targets for attention. With the potential availability of CTE partnership resources and the willingness and capability of CTE programs to utilize them, this study will explore the current profiles of partnership development within an CTE district. Specifically, this study seeks to discover the current needs or strategies used that sustains the network of CTE partnerships in the district participating in this study. CTE partnership research findings would be a valuable starting point for professional development and new teacher orientations. A survey was developed and distributed to 38 CTE program of study instructors. The study measures alignment to partnership criteria and relates teacher perceptions regarding factors associated with that criteria.
Program

OG7 1:00 p.m.
Weblink: https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e

Dairy Logistics Supply Chain Using Blockchain Technology

Cui Fang and Dr. Weiwei Zhu Stone
Department of Computer Science, UMES, Princess Anne, MD 21853

Due to the acceptance or Bitcoins, Blockchain is becoming a popular front-age technology in finance, business, logistics, insurance, and many other fields. This project uses blockchain technology to redesign Dairy Supply System because it is decentralized, provides real-time tracking information, and improve food safety. Consensus transaction data and information about milking, shipment, processing, distribution, and retail will be stored in local blockchain adapted on the Ethereum platform and shared among involved participants. The real-time data will get recorded when sensors scanning with FRID on the milk tanks, milk trucks, and QR code on the product package. A decentralized application build with the next framework allows each participant can enter and attach some necessary information and certifications. Real-time and efficient track and trace capability make recalling action become more effective and improve dairy food safety. The running of smart contracts supports a more customized and diversified high-quality dairy supply system with a crowd-funding function. More visible and authentic tracking data can remove part of customers' fear and reduce food waste.

OG8 1:15 p.m.
Weblink: https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e

Detection and Validation of Volatile organic compound, Gamma-butyrolactone in Herpes Simplex Virus Type-1 Acute Infection

Faith Osinaga and Dr. Victor Hsia
School of Pharmacy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Herpes Simplex Virus Type-1 (HSV-1) infection affect 90% of the world’s population. Herpes Simplex Encephalitis (HSE) is sporadic but quite lethal having a death rate of 70-90% if left untreated and more than half of its survivors experience neurological deficits. Furthermore, viral latency and reactivation is not lucid. Our recent report for the first time showed that gamma-butyrolactone (GBL), a VOC, was released upon Herpes Simplex Virus Type-1 (HSV-1) acute infection of Vero cells via GC-MS, and that it could restrict viral replication. Volatile organic compounds (VOCs) release triggered by infection of DNA virus is not known. It has been shown that GBL serves as a stress signal for bacteria. The production of GBL was the most abundant at 24-hour post infection; in addition, GBL was able to restrict viral replication. Our central hypothesis is that GBL is a part of the cellular self-defense mechanism against the virus attacking neighboring cells. We propose that initially infected cells produce gamma-hydroxybutyrate (GHB) as a non-volatile key pathway intermediate for the subsequent production of GBL. It has been reported that GHB is a metabolite of Gamma-amino butyric acid (GABA), while GBL is the lactone form of GHB, within the metabolic pathway. We will first confirm systemically that GBL was neither produced as a result of experimental procedures nor by noninfected cells via LC-MS. Furthermore, we will detect GHB by utilizing LC-MS; suitable because GHB is not volatile. Lastly, validate and quantify the production of GHB utilizing LC-MS/MS.

Effects of Drying and Extraction Conditions on Phytonutrient Retention in Hibiscus sabdariffa L. Calyx Extract

Megan Reid*, Ms. Corrie Cotton, Dr. Byungrok Min, Dr. Jurgen Schwarz, and Dr. Caleb Nindo
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*Corresponding author.

Hibiscus sabdariffa L., a tropical crop, is considered a medicinal plant of nutritional and economic value. The goal of this study was to determine the effective drying method of hibiscus calyces and extraction condition to maximize phytonutrient retention in extract. The objectives were 1) to determine the water-to-calyces ratio and extraction time and temperature of extract (Study 1) and 2) to determine an effective drying method for the calyces to maximize the phytonutrient contents in the extract (Study 2). In Study 1, freeze-dried, ground calyces were extracted using factorial combinations of the condition variables: extraction time (15, 30, and 60 minutes) and temperature (25°, 50°, and 80 °C) (DDW ratio 1:12 (w/v)). Color, pH, and total soluble solid, anthocyanin, phenolic, and flavonoid contents (TSSC, TAC, TPC, and TFC, respectively) of the extracts were evaluated. The results suggested that 30-minute extraction at 25 °C is the best condition to extract anthocyanin and other phenolic compounds. For Study 2, harvested calyces were dried using different drying methods (Freeze-dried (FD), Oven-dried (OD) and Greenhouse-dried (GD)), ground, and extracted at 25°C for 30 minutes. Extract production parameters and phytonutrient contents of the extracts were evaluated.
The extract yield and TAC in the FD extract was significantly higher than those in the GD and OD, while TPC and TFC in the extracts were not affected by the drying methods. These results suggested that of the three methods studied, freeze-drying is the best method to maximize extract yield and anthocyanin extraction from the hibiscus calyces.

**Effects of Nano-Zinc-Oxide (NZO) on Root Rot Fungi in Soybean**

Angelo Crump*, and Dr. Naveen K Dixit  
Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Three independent experiments were conducted during 2018-2020 to manage Fusarium solani (FS) in vitro and in vivo using NZO particles (10-30 nm, 40-60 nm, and 80-100 nm). NZO of different sizes effectively inhibited the growth of FS in vitro and in vivo conditions. Complete suppression of fungal growth was observed at 25 mM concentration in vitro conditions using 10-30 nm, 40-60 nm, and 80-100 nm NZO particles. Based on in vitro data, 25 mM concentration and 10-30 nm size of NZO were selected for in vivo work to manage FS in soybean roots. NZO treatment showed positive effects on root growth in terms of an increase in the number of secondary and tertiary roots. However, there is a significant decline in the length of the primary root. Similarly, FS infection caused the death of primary roots and a reduction in the number of secondary and tertiary roots. NZO (25 mM) application partially restored the FS compromised roots by increasing the number of secondary and tertiary roots but showed toxic effects on the above-ground plant parts.

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

S.S. Henry1*, Brandon Jackson1, Dr. Tigist Tolosa2, Dr. Victoria Volkis and Dr. Simon Zebelo*  
1Department of Agriculture, Food and Resources Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

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 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, electrophysodynamic, 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.
the Bering Sea and Southeast Alaska, which can result in unmarketable crab meat and high mortalities thus causing significant losses to commercial fisheries. Based upon observed changes in biochemical composition, Hematodinium sp. may affect regulation of metabolic gene expression in infected crabs. This study will explore this effect, in addition to the regulation of genes involved in the immune response in Tanner crabs. The effect of climate change on host Tanner crab immune function, and susceptibility to disease, is also currently unknown. This study provides an opportunity to assess these parameters, and provide baseline information for assessment of the health of this fishery.

OG13 1:00 p.m.
Weblink: https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0

Evaluation of Sustainable Fertilizers on Soil Health and Yield of Specialty Crops Grown on the Delmarva Peninsula

Zachary Williams*, Ms. Corrie Cotton, Dr. Amy Collick, and Dr. Simon Zebelo
Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Sustainable fertilizers are a source of plant nutrients, feed the soil, and increase the bio-diversity and activity of the soil microbial population. A major indicator of soil health, which is the continued capacity to function as a vital living ecosystem, is biological activity measured by soil respiration rate. A preliminary study was conducted summer 2019, at the UMES Agricultural Experiment Station, to evaluate the application of sustainable fertilizers on plant growth and development and soil health. The experimental design was a complete randomized design with four treatments (T1: Control (20-20-20), T2: Sea Crop + Black Strap Molasses, T3: Vermicompost Tea + Alaska Fish Fertilizer + Molasses, and T4: Poultry Litter Leachate + Molasses), two crops (broccoli and Chinese cabbage), with four replications each. Each plot consisted of one 3-meter black plastic mulched row with 1-meter spacing between rows and 2-meter spacing between plots. 400 ml of each treatment was applied biweekly throughout the study, and soil samples were carefully collected from the root zone of each plant the week after application. Crop yield and soil biological activity (CO₂ release), measured using a Solvi-ta® Field Test, was evaluated. There was no significant difference in crop yield between the control and treatments. There was a significant difference in CO₂ release at each sample date and the total CO₂ released during the study. The CO₂ release for treatments 4 and 3 were significantly higher when compared to the other treatments. Therefore, treatments 3 and 4 will be used in future soil health studies.

OG14 1:15 p.m.
Weblink: https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0

Gender Identity: A Multi-Theoretical Approach to Student Development

Ms. Stephanie Hallowell* and Dr. Leslie Santos*;
Jessie Cavolt** and Dr. Heather Holmes2*
Department of Rehabilitation Services, University of Maryland Eastern Shore, Princess Anne, MD 21853
2*Department of Education, Salisbury University, Salisbury, MD 21801

Title IX in Higher Education promotes equal access to a college education for all students and prevents them from discriminatory practices in institutions of higher education that receive federal funding. Unfortunately, the lack of awareness of Student Development Theory as it relates to Gender Identity Development among higher education professionals has led to negative stereotypes and discrimination against college students who don’t identify with normal gender roles and normal gender identity. This research will focus on Lev’s (2004) Binary Model, Lev’s (2004) Continuum Model, D’Augelli’s (1994) Model; and how they overlap with Student Development Theory and Counseling Theories in higher education. The primary researcher will include a copy of a syllabus for the proposed course “Inclusion of LGBTQ Students in Post-Secondary Education.”

OG15 1:30 p.m.
Weblink: https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0

Isolation, identification, and extraction of antimicrobial compounds from soil-derived Non-Streptomyces spp.

Chinedu Ahuchaogu1*, Jennifer Ossai2,
Dr. Madan Khare3, Dr. Sadanand A. Dhekney1 and
Dr. Behnam Khatabi1,2
1 Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853
2Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, MD 21853
3School of Pharmacy And Health Professions, University of Maryland Eastern Shore, Princess Anne, MD 21853

Antibiotics are ecological factors from the environment that have potential to affect microbial communities. Antibiotics are vital to humans for combating bacterial infection and are used to treat a large number of human infectious diseases. The overarching goal of this project is
to explore soil microbial communities to identify species with antimicrobial properties against human pathogens, foodborne pathogens. Soil samples were collected from Agricultural Research Service (ARS), Beltsville, MD. Based on morphological differences and physiological variations, 125 isolates were selected, purified, and preserved. The antimicrobial compounds were extracted using a methanol extraction method. The active crude compounds were subjected to secondary screening by agar well diffusion method to confirm activity against the same pathogenic bacteria and fungi. Among them 6 bacterial strains (Bacillus simplex, Paenibacillus vulneris, Paenibacillus chibensis, Bacillus niacin, Bacillus simplex, Pseudomonas cedrina) showed strong antibacterial and antifungal activity in primary screening. We tested different organisms such as Bacillus subtilis, Escherichia coli, Staphylococcus epidermidis, Acinetobacter baylyi, Erwinia carotovora, and Enterobacter aerogenes. These potential soil bacteria could be an interesting source for pharmaceutical industries to explore antibacterial and antifungal compounds.

OG16 1:45 p.m.
Weblink: https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0

Physical Therapist' Knowledge, Beliefs and Self-Efficacy Regarding Bone Health and Osteoporosis

Abigail Sauber, Michelle Poulopoulos, Don Anuradha

Punchihewage, Dr. Cindy Gill and Dr. Mary Layshock

OG17 2:00 p.m.
Weblink: https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0

Synergistic Effect of Application of Peracetic Acid and Lauric Arginate via Commercial Electrostatic Spray Cabinet to Inactivate Salmonella on Chicken Meat and Quality Attributes of Sprayed Meat

Anuradha Punchihewage-Don*, Dr. Salina Parveen*, Dr. Jurgen Schwarz*, Lindsey Hamill*, Dr. Caleb Nindo*, Dr. Parker Hall* and Dr. Bob Vimini*

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Chicken meat is an important protein source, but chickens are a major carrier of Salmonella bacteria. Therefore, control measures need to be applied in the poultry industries to increase food safety. This study aimed to determine the efficiency and quality attributes of Peracetic Acid (PAA) and Lauric arginate (LAE) to reduce Salmonella on raw chicken meat when applied individually and in combination using an electrostatic spray cabinet. Five log CFU/g of non-pathogenic, rifampicin resistant Salmonella Typhimurium were aseptically inoculated on skin/bone less raw chicken thigh meat and passed through a commercial electrostatic spray cabinet while being sprayed with 5% LAE, and 100, 1000, 1500, 1750 ppm of PAA. Three experiments were carried out to analyze microbiological aspects as follows: (1) optimal concentration and exposure time of PAA (2) ideal exposure time of LAE, and (3) effect of a combination of treatments with LAE and PAA. Each sample was stored at 4 °C for 0, 1, 2, and 3 days and subjected to microbiological analysis. Organoleptic sensory evaluation, color measurement and water holding capacity (WHC) were performed to understand the meat quality attributes. Spraying of 5% LAE for 45s, significantly reduced Salmonella by 5 logs (p<0.05). The 1500 ppm of PAA reduced Salmonella significantly within 45s (1.157 logs). Spraying of 1500 ppm LAE followed by LAE within 15s reduced Salmonella significantly more than vice versa (p<0.05). The treatments did not cause significant (p>0.05) differences in color, water holding capacity or texture, but did result in a significantly (p<0.05) strong aroma and flavor. Both LAE and PAA efficiently reduced Salmonella when applied in an electrostatic spray cabinet on raw chicken thigh meat. The results suggest that the sequential order of application of antimicrobial agents is important to improve the safety and quality of raw chicken thigh meat.

Teacher Perceptions Regarding Teaching African American Studies to High School Students in a Maryland Urban Public School Setting

Marie Parfait and Dr. Henry Wagner
Under the Trump Administration in 2017, the United States revoked its membership in the United Nations Educational, Scientific, and Cultural Organization (UNESCO). The withdrawal may have negatively impacted the level of climate change instruction at high schools around the United States. The purpose of the research study is to identify potential weaker instructional areas as it relates to two of the 17 Sustainable Development Goals (SDGs) outlined by UNESCO. Specifically, the research examines the relationship between quality education, SDG #4, and climate action, SDG #13 (UNESCO, 2017).

Students randomly selected in public high schools in Japan and the United States received a pre- and post-assessment, along with a survey and instructional lesson on loggerhead sea turtles. Using the responses to the pre-test, the researcher compared the results of the students in Japan to the American students to identify the level of knowledge on climate change before the introduction of the instructional instrument.

The analysis provides initial insight into potential research to be conducted on climate change education as it relates to sustainable development goals. Future research ideas may include climate change training and certification of teachers in different countries compared to educational attainment of students; climate change knowledge of students in the United States and Japan compared to other developed countries; and expanding the initial research to include public high schools throughout the United States and Japan.

OG21  1:30 p.m.
Weblink:  https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061

The Impact of the Strategic Interventions Used to Prevent Special Education Services Provided to Black Males

Boli Kabwasa* and Dr. Patrica Goslee
Department of Education, University of Maryland Eastern Shore, Princess Anne, Maryland 21853

For many decades, overrepresentation of black males in special education has had a very discriminatory, yet normal practice in many school districts. “This is a complicated issue because it is often difficult to determine if a student is struggling in school because of a disability or—as some suggest—other factors such as poverty, limited English proficiency, or factors within the school environment, such as a lack of high-quality instruction or cultural bias.” (U.S. Government and Accountability Office, 2013) As early as 1980 and still continuing in 2020, black males have continually been overrepresented in special education. Overrepresentation occurs when ethnic groups’ percentage in special education is significantly larger than its percentages in the general education envi-

OG20  1:15 p.m.
Weblink:  https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061

The Fate of Antioxidants from Aronia Berries During processing: Heating/Pasteurization and Resin Extraction

Mohamed Abdelmotalab††, Bokary Sylla†, Amit Sharma†, Breann Hrechka-Green†, Dr. Andrew G. Ristvey‡ and Dr. Victoria V. Volkis††
†Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD, 21853
‡University of Maryland Extension, Wye Research & Education Center, Queenstown, MD 21658-0169

Aronia (Aronia mitchurinii) is a berry generally known as black chokeberry, that has one of the highest known content of hydrophilic antioxidants, such as simple phenolic, flavonoids, and the most valuable – anthocyanins. These antioxidants have the capability of holding their free radicals after assimilation, preventing its negative effects such as cancer, aging and more. However, this group of antioxidants is known for low thermal stability and often would decompose under such a standard food processing technology as pasteurization and cooking. Providing processing conditions that would preserve as much of antioxidants as possible is very critical. Additionally, due to excessive number of tannins, the pulp of the berry is not palatable, yet contains about half of the total antioxidant content. Novel technology of resin extraction allows to extract phenolic antioxidants from the pulp extract of juice and isolate it as powder suitable for use as food supplements and in medicine. This study presents a full phytochemical characterization of aronia as function of temperature and exposure time, as well as the evaluation of four chemical resins for antioxidants extraction.

This work is supported by the AFRI-EWD-REEU program, grant no. 2020-69018-30655, from the U.S. Department of Agriculture, National Institute of Food and Agriculture, and by USDA-NIFA Evans-Allen grant at UMES.
environment. One study found that black males represent only about 9% of the total population of students in the United States’ public-school system; however; 20% of black males are identified as intellectually disabled, 21% are identified as emotionally disturbed, and 12% are identified as learning disabled (US Department of Education NCES, 2000). In 2013-2014 Black students represented nearly 39 percent of all students suspended from school, although they only made up 15.5 percent of all public-school students; which is an overrepresentation of nearly 23 percentage (U.S. Government and Accountability Office, 2018). Black male students "more than any other groups are suspended and expelled from school." (Ladson-Billings, 2011) The purpose of this study focuses on the culture of the students as well as the perception of teachers and administrators. It will also focus on strategies that teachers and administrators can use to prevent overrepresentation of black males in special education. In order to do so, many factors that influence children’s education must be addressed. These factors include the student’s culture, community, teachers’ thought and perceptions of their students, teachers’ instructional style, classroom management and school performance (curriculum-based instruction, high stakes testing). Throughout this study we will review strategies that have been successful in addressing issues regarding black males being overly represented in special education. For the purpose of this study black males are defined as any male having origins in any of the black racial groups in Africa. Biracial males are identified as having one Black parent. The race will be identified as Black. The U.S. Census Bureau, which is responsible for generating statistics about American civilians and the economy, must adhere to the 1997 Office of Management and Budget (OMB) standards on race and ethnicity which defines black males as “any male having origins in any of the black racial groups in Africa” (National Center for Education Statistics, 1997). The data collected by the Census Bureau influences the amount of federal funds that school districts receive annually. Schools are able to provide services and programs, such as Special Education, which are vital for providing an equal and appropriate education for all students, in particular black males.

Aronia mitchurinii is a species of berry native to the North-Eastern U.S. and naturalized cultivar in Eastern Europe. Previous studies have reported high content of flavonoids, polyphenols, anthocyanins and other phenolic antioxidants in Aronia spp. Much is known about the high antioxidant content in Aronia juice. However, its phytochemical content has never been correlated with cultural management conditions. The conditions encompassed include areas such as fertilizing, mineral additives, irrigation, age of the crop, etc. Since 2006, a study has been collaboratively studying the effects of nitrogen treatment, soil moisture, organic versus conventional growing, mineral additives and other factors that influence the antioxidant content of Aronia. Currently the study is conducting an indepth study of sugars, antioxidants, and sorbitol development over the process of ripening. The objectives of this study are: 1) to analyze whether the previously listed factors, such as nitrogen treatment, soil moisture content, and organic versus conventional fertilizer exposure have an effect on the phenolic yields of compounds in Aronia mitchurinii juice, 2) to develop best practice regarding the growing and cultivation of Aronia mitchurinii, 3) measure sugar content, antioxidants, and sorbitol over the period of ripening of berries, and 4) to compare the results with data obtained from harvest years 2017-2020.

This work is supported by the AFRI-EWD-REEU program, grant no. 2020-69018-30655, from the U.S. Department of Agriculture, National Institute of Food and Agriculture, and by USDA-NIFA Evans-Allen grant at UMES.

OG23 2:00 p.m.
Weblink: https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061

The Use of Chitin and its Derivatives in Reversible Carbon Dioxide Sequestration

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Efforts for controlling greenhouse gas pollutions focus on reducing the current amount of atmospheric CO₂ using materials able to bind it. Prior experiments utilized materials that are irreversible, therefore CO₂ cannot be released after sorption and this results in more solid waste. For this reason, an effective and practical carbon sequestration should utilize reversible and reusable sorbents. Previous experiments sourcing chitosan, a derivative of chitin, have demonstrated reversible sorption-desorption properties with CO₂. Chitin’s structure has even better potential for carbon sequestration. Chitin and chitosan are biopol-

OG22 1:45 p.m.
Weblink: https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061

The Influences of Cultural Management on Phenolic Compound and Sugar Content in Aronia mitchurinii - a Four Year Comparison

Breann Green*, Dr. Andrew Ristvey2 and Dr. Victoria Volkis†
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ymer with vast structural possibilities for chemical modifications to generate good sorbent for carbon capture. However, their hydrophilic nature leads to swelling of the sorbent during the sorption of wet carbon dioxide, which significantly reduce the active surface. Blends with polysulfone were used to help counteract the swelling of the chitosan followed by CO$_2$ sorption. Recent study has shown that the molecular weight of chitin has a significant influence on its sorption properties. To further investigate it, acid hydrolysis of chitin is performed to prepare lower molecular weight oligomers for better solubility and more convenient blending. Carbon dioxide sorption data, as well as hydrolysis process and its UC/Vis and SEC characterization will be discussed.

OG24 2:00 p.m.

Weblink: https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9

Classification of a Small Tree Defects Dataset Using ResNet-50 Architecture and Data Augmentation

Arjun Dixit* and Dr. Yeong-Nain Chi
Department of Agriculture, Food and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Identifying hazard trees in urban setup is a time-consuming and tedious task and therefore concerned organizations and homeowner associations may not identify and fix such hazard trees in time. The purpose of this study was to identify the type of defects in the trees with the use of convolutional neural networks. This technology could speed up the process of identifying hazard trees. The study used the Image Processing Toolbox of MATLAB 2019a to process and classify the images into one of the seven most prominent types of tree defects. The CNN used for this classification was ResNet-50. The Tree Defects dataset was prepared from images from publicly available sources. Further, the accuracy of the classification of these images into each of the defect categories was tested by obtaining a confusion matrix. The performance of ResNet-50 architecture was compared on three more publicly available and common research datasets Caltech101, Flower, and Dogs. The novel Tree Defects dataset was very small and had only 298 images. For its effectiveness on smaller datasets, ResNet-50 architecture was used along with data augmentation of tree defects images by rotating them 90-degrees clockwise and anti-clockwise. The effect of the proportion of training dataset on model performance was also evaluated by training the model on 70%, 80%, and 90% of the total images in the dataset. The augmented Tree Defects dataset had 894 images. The model performance improves by 43.56% on the augmented Tree Defects dataset. The augmented model achieved the highest classification accuracy of 91.48%.
Pesticide are chemicals that are used in agriculture to prevent and/or control pests. Most pesticides are toxic and some may even harm the plant. Due to restrictions on pesticide use, organic farms are not allowed to apply synthetic pesticides. As a result, several total harvest losses have happened locally and across the United States. This project works with Holy Basil (Ocimum tenuiflorum), Aronia (Aronia mitchurinii), along with various other medicinal herbs and plants, which may have either a deterrent, attractive or repellent effect on insects. The researchers made use of extractions from these plants, characterization of the phytochemical content, and use of a bioassay system-controlled pest interference to evaluate pest repellent abilities of extracts. Extraction, phytochemical characterization, and results of bioassays will be presented.

This work is supported by the USDA-NIFA Evans Allen Grant at UMES, and the National Science Foundation under Grant #HRD 1619676, which supports the USM-LSAMP @ UMES program.

**OU2 1:15 p.m.**

**Development of A Portable Device Capable of Gauging Ripeness In Fruits Rich In Sugars and Anthocyanins**

Ezra Cable*

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

Aronia mitchurinii is a super-fruit with highest known content of anthocyanin antioxidants. Previous research has shown that over the period of aronia ripening, the peak of sugars typically comes later than the peak of anthocyanin. However, the color of the berries is the same at both peaks, making it hard to visually determine the optimal time for harvesting for food (highest sugar content), and for medical (highest level of anthocyanins) applications. This project aims to develop a portable, affordable, easy to use gauge for farmers that can identify anthocyanins and sugar content in berries like aronia. Using a commercial glucometer as a prototype, this study has determined that the aronia juice at different visual stages of ripening and the anthocyanin standard can be detected at the natural pH of the juice, whereas sugars in juice can only be detected in neutral buffered solutions. This offers the potential for a glucometer-based gauge. This work is supported by the AFRI-EWD-REEU program, grant no. 2020-69018-30655, from the U.S. Department of Agriculture, National Institute of Food and Agriculture, and by USDA-NIFA Evans-Allen grant at UMES.
Mental health is one of the most common topics when it comes to psychological studies. The study of human behavior comes into question when someone’s actions impact others with human behavior. This research is to find a way to read mental health conditions using machine learning programming and generic mental health dataset for the machine learning to read, generate, and analyze any pattern regarding mental health conditions either stable or unstable. Data was obtained from www.kaggle.com for generic mental health datasets so the machine learning has a basic moral to go by. The patterns from this data set include the 4 common mental health disorders, stress, loneliness, anxiety, and depression. After researching and experimenting on ways to develop this program, the study concluded this program does work and can read how accurate the dataset is, generate both decision tree and linear regression table, and import a mental illness table. However, the dataset I used is not helpful since the data is very linear towards mental health issues. The program did answer the hypothesis which is possible to predict a person’s mental health conditions using machine learning. Now the next challenge is to find a good dataset that can give the program a good foundation to predict mental health conditions.

**Experimentation of Machine Learning Usage for Mental Health Studies**

Nicholas Waugh* and Dr. Mark William
Department of Computer Science, University of Maryland Eastern Shore, Princess Anne MD 21853

As we continue to strive for normality we can reflect on this year’s pandemic as one to remember as COVID-19 affected the entire world as one of the deadliest pandemics in American history. With our lives changing overnight few research has been done to explore the mental & physical impacts covid-19 has on HBCU Athletes. Using a qualitative approach with in-depth interviews of 15 HBCU college student participants who are athletes, this research will explore how COVID 19 Had an impact on physical and mental health of HBCU college athletes, specifically on how COVID-19 affected athletes physically and mentally from practice to competition. The themes of this qualitative research and recommendations will be reported at the Symposium.

**Exploring The Impacts of COVID 19 on Physical and Mental health of HBCU College Athletes**

*Shemar Parkera and Dr. Lisa Zheng
Department of Rehabilitation, University of Maryland, Eastern Shore, Princess Anne, MD 21853

The next challenge is to find a good dataset that can give the program a good foundation to predict mental health conditions.

**Exploring the Effects of having Pets on Residential College Students during the COVID-19 Pandemic**

Aniyah Smith* and Dr. Lisa Zheng
Department of Rehabilitation, University of Maryland, Eastern Shore, Princess Anne, MD 21853

Like many other coping mechanisms, having pets has been effective for individuals who undergo unpleasant situations and hardships across the world. However, little research has been done to explore how pets can have an effect on residential college students’ coping during COVID-19 pandemic. Using a qualitative approach with in-depth interviews of 15 HBCU residential college student participants who are pet owners, this research will explore how living with pets on campus impact college students on dealing with life challenges especially under social distancing restrictions. Specifically, students were asked to talk about how their pets had affected their physical, mental, emotional well-being as well as academically during the epidemic. The themes of this qualitative research and recommendations will be reported at the Symposium.

**Exploring The Effects of having Pets on Residential College Students during the COVID-19 Pandemic**

Aniyah Smith* and Dr. Lisa Zheng
Department of Rehabilitation, University of Maryland, Eastern Shore, Princess Anne, MD 21853

The sodium-proton exchanger 3, NHE3, is an important protein in the proximal tubule of the kidney responsible for the majority of sodium-water reabsorption. It is important to understand the mechanisms that regulate NHE3 in the kidney because it is linked to an increase in blood volume and blood pressure. Studies have shown that insulin increases the activity of nhe3, therefore the goal of this study was to determine the effects of insulin on nhe3 expression using zebrafish as a model organism. Adult zebrafish were divided randomly into groups (5 fish/group) and injected intraperitoneally
Program

late intestinal NHE3 via second messenger Phospholipase C as an insulin cations (Zn^{2+}). Previous studies have emphasized a key role of zinc and activity. However, the mechanisms are not fully elucidated. The data suggests a link between insulin and NHE3 in the proximal tubule of the kidney. This provides insights into how hypertension in patients with Type 2 diabetes or hyperinsulinemia may develop.

**OU8**

Hydrolysis Of Chitin From Seashells

*Jalani Addison*, Preeti Sharma, and Dr. Victoria V. Volkis*
Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Extensive pollutions of carbon dioxide, one of four most impactful greenhouse gases, has a negative impacted on the atmosphere and environment. Developing reusable sorbents for CO$_2$ will help significantly reduce the pollution. A recent study has shown that chitin and chitosan, derived from seashells, has proven to be reversible sorbents for carbon sequestration. However, molecular weight is an important factor here. Typically, sorbents with the weight much lower, than original polymers from shells, are more effective. Hydrolysis is a process of breaking some C-O-C links in original polymers, producing a mixture of dimers, trimers and low oligomers. The influence of hydrolysis conditions, analysis of oligomers, and the influence on CO$_2$ sorption will be presented.

**OU9**  1:30 p.m.
Weblink: [https://us.bbcollab.com/guest/b8f1f906dfcf4ad09e4795128c5c22](https://us.bbcollab.com/guest/b8f1f906dfcf4ad09e4795128c5c22)

Insulin Receptor Signaling and Zinc in the Zebrafish Kidney

Brianna Gaskins*, Reneece Sleen* and Dr. Tracy Bell*
*Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, MD 21853

Sodium-proton exchanger 3 (NHE3) is expressed in the proximal tubule of the kidney and accounts for the majority of total sodium and water transport. Insulin receptor (INSR) signaling seems to be involved in sodium and water transport in proximal tubules via increased NHE3 expression and activity. However, the mechanisms are not fully elucidated. Previous studies have emphasized a key role of zinc cations (Zn$^{2+}$) in the synthesis and secretion of insulin and as an insulin-mimetic. Also, Zn$^{2+}$ has been shown to stimulate intestinal NHE3 via second messenger Phospholipase C (PLC). It raises the possibility that Zn$^{2+}$ may have similar effects on NHE3 in the kidney as has been shown for insulin. Therefore, this study aimed to investigate the effect of zinc chloride (ZnCl$_2$) on NHE3 and insr gene expression in the kidney using adult zebrafish (Danio rerio). Fish were randomly divided into control and experimental groups, each containing twelve fish and exposed to zinc-free water (system water) or ZnCl$_2$ dissolved in system water at a nominal concentration of 10 mg/L, respectively. Every two days, control and treatment solutions were changed, and a sample of water was collected for analysis. Following one week of exposure, the fish were euthanized with freezing cold water and the kidneys were excised and pooled together by groups for gene expression analysis. Real-time PCR performed using zebrafish-specific primers demonstrated that ZnCl$_2$ exposure significantly increased nhe3a gene expression in the kidney (p<0.01), but there was no significant effect on INSRA, INSRB and NHE3b gene expression. Inductively coupled plasma mass spectrometry (ICP-MS) measurements revealed that free Zn$^{2+}$ released by ZnCl$_2$ did not decrease in treatment solutions following fish exposure when compared to fresh treatment solutions. Taken together, these findings show that exposing zebrafish to ZnCl$_2$ induces NHE3 gene expression and suggests that this treatment can be used to further investigate the role of zinc in NHE3 regulation in the kidney.

**OU10**  1:45 p.m.
Weblink: [https://us.bbcollab.com/guest/b8f1f906dfcf4ad09e4795128c5c22](https://us.bbcollab.com/guest/b8f1f906dfcf4ad09e4795128c5c22)

Investigating The Role of Rho1 In Bacterial Clearance Using Drosophila Melanogaster

Briah Barksdale*1, Shonda Campbell1 and Dr. Jeff Leips1
1Department of Biological Sciences, University of Maryland, Baltimore County, Baltimore, MD 21250

The innate immune response is an evolutionarily conserved process essential for host survival in all multicellular organisms; this process begins declining with age. While immune function generally declines with age, there is a great deal of variation among individuals in the rate of this decline. The genes responsible for this variation are not known. A previous study using 12 genotypes of *Drosophila melanogaster* identified Rho1 as a candidate gene that contributes to individual variation in age-specific immune function. The goal of this project is to validate the findings of the previous study and determine if Rho1 plays a role in clearing a bacterial infection with age. To assess the role of Rho1 in clearing an infection, the expres-
sion of Rho1 was knocked down using RNA interference (RNAi), and one- and five-week-old virgin females were injected with an Escherichia coli solution. Flies were given 24-hours to clear the infection, and the surviving flies were individually homogenized, and the homogenate plated. After incubation, colony count was used as the phenotype of each individual and reflected the remaining bacteria in the fly. These results could lead to improved therapeutic treatments in an aging population, providing age-appropriate drug targets to restore the immune function.

OU11 1:00 p.m.
Weblink: https://us.bbcollab.com/guest/b8f1f906d6cf4ad09ece4795128c5c22

Observing Spread of Disease using Graph Theory and Link Prediction

Darryl Parsons\textsuperscript{1} and Dr. Tiara T. Cornelius\textsuperscript{2}
\textsuperscript{1}Department of Computer Science & Engineering Technology, University of Maryland Eastern Shore, Princess Anne, MD 21853
\textsuperscript{2}Department of Mathematics, University of Maryland Eastern Shore, Princess Anne, MD 21853

A system of people and their relationships with each other can be simplified into nodes and edges. Those are the fundamental components of graph theory. The research goal is to estimate how those relationships evolve over time using link prediction algorithms. The study will identify if there is an increase in accuracy when observing the spread of disease in a network when using link prediction. This will be applied using the programming language Python along with a variety of important packages such as NetworkX and EoN.

OU12 2:15 p.m.
Weblink: https://us.bbcollab.com/guest/b8f1f906d6cf4ad09ece4795128c5c22

Probing Specialty Crops and Medicinal Herbs Extracts for Potential Antifouling Agents

Teemer Barry\textsuperscript{1}, Carson Cohen\textsuperscript{1}, Baruch S. Volkis\textsuperscript{1}, Dr. Paulinus Chigbu\textsuperscript{1} and Dr. Victoria V. Volkis\textsuperscript{1}
\textsuperscript{1}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. This build-up creates additional drag and environmental degradation in marine habitats. Substantial biofilm formation increases fuel consumption, causing significant economic loss to commercial or military vessels. The major impact of biofilm formation is to the environment, with numerous microorganisms in chunks of biofilm, detaching from the ships, as they move across the globe, being largely invasive at habitats different from the origin. With traditional antifouling biocides such as Tributyltin (TBT) being highly toxic and subsequently banned by the U.S. and other countries, many researchers have sought out alternatives which are environmentally friendly and non-toxic. Many highly hydrophobic synthetic coating alternatives have failed because they were either too costly or they still were harmful to the environment. The planned approach is to encapsulate extracts of antioxidants, terpenes, and essential oils from several natural plant sources into slow-release biodegradable polymers for use as antifouling formulation. Plant-polymer formulations, antifouling tests with positive results, and surface analysis will be presented.

OU13 2:15 p.m.
Weblink: https://us.bbcollab.com/guest/c4bc377c733e446fbd43a0655dc061

Expanding the Phylum Cnidaria of the Species Database for the West Coast National Marine Sanctuaries

Semaj Fielding\textsuperscript{1} and Dr. Steve Lonhart\textsuperscript{2}
\textsuperscript{1}Department of Natural Science, University of Maryland Eastern Shore, Princess Anne, MD 21853
\textsuperscript{2}Monterey Bay, National Marine Sanctuary National Ocean Service National Oceanic and Atmospheric Administration Santa Cruz, CA 95060

The Species Database is an online resource found on the Sanctuary Integrated and Monitoring Network (SIMON) website. It provides the public with general natural history information on a variety of species found in the West Coast National Marine Sanctuaries (Channel Islands, Cordell Bank, Greater Farallones, and Monterey Bay). These entries include distinguishing features, abundance, habitat, distribution, general life history, and conservation issues. The objective of this project was to expand the invertebrate portion of the website, specifically the phylum Cnidaria which includes corals, anemones, and jellyfish. Intensive use of online databases and books were used to gather information about each species. Ultimately more than 35 species of the cnidarians were added to the SIMON website, which informs the public of our incredible biodiversity when visiting the marine sanctuaries. These species entries will be used by the public and NOAA staff to better understand and appreciate the diversity of Cnidaria that live and thrive within our West Coast National Marine Sanctuaries.
Plant Growth Regulator Concentrations Influencing Rooting in Asexually Propagated Plants of Cannabis sativa L.

Tyler Reid*, Knowledge Wells, Erik Lindsay, Michael Foland, Carissa Jackson, Gabrielle Johnson, Dr. Papaiah Sardaru, Dr. Behnam Khatabi and Dr. Sadanand Dhekney
Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Industrial hemp is legally classified as any Cannabis sativa L. cultivar that produces a delta 9-tetrahydrocannabinol (THC) concentration of less than 0.3%. Industrial hemp grown for cannabinoid production and extraction consists of exclusively female plants as male plants produce flowers that contain negligible quantity of cannabinoids. Asexual propagation using softwood cuttings are traditionally used for propagation of female plants. In the current study, the effect of three indole butyric (IBA) concentrations was evaluated on root production of four industrial hemp cultivars. Softwood cuttings, 3-4 nodes and 10 cm in length were obtained from female stock plants of ‘Hazelnut hybrid’, ‘Sangria’, ‘Jamaican Lion’ and ‘Mayple Syrup’ hemp cultivars. Cuttings were dipped in commercial Hormodin powder containing either 0.1, 0.3 or 0.8% IBA. There were 5 replicate cuttings for each growth regulator concentration. Cuttings were then inserted in 50 cell plug trays containing commercial potting mix that was saturated with water. The trays were thoroughly sprayed with distilled water to maintain a high relative humidity and preventing desiccation of cuttings. After 3 weeks, cuttings were transferred to 10 inch pots containing potting mix and the number of cuttings producing roots and root density was observed in each treatment.

Rooting of cuttings was observed in all growth regulator concentrations studied. Among the various cultivars, 100% rooting was observed in Hazelnut hybrid, Jamaican Lion and Sangria at 0.3% IBA concentration while ‘Mayple Syrup’ produced the maximum rooting in 0.1% IBA. Differences in root densities were also observed among the different cultivars. The researchers are currently studying plant vigor from the cutting-derived plants. Optimizing growth regulator concentrations should allow for efficient asexual propagation of hemp plants and obtaining high quality plant material for cannabinoid production.

Radiative Cooling Using Cellulite Materials

Yeganeh Mansourian and Dr. Kausik S Das*
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Global warming and climate change are some of the most important issues which the world is facing. Basic principles of thermodynamics tell us that heat flows from a hot object to colder object. Temperature of deep space on an average age is 2.7 Kelvin (~455 degrees Fahrenheit), which is much colder than earth. It also means that an efficient heat transfer mechanism can be devised to use the deep space as a heat sink and cool down objects on earth. This mechanism of passive cooling without using any external energy is called ‘radiative cooling’. The practical difficulty in this approach is that the earth is covered by atmosphere which is largely opaque to the infrared radiations, and this atmospheric blanket absorbs most of the heat radiated by the objects on earth and the earth itself before radiating them back to earth. However, careful investigation of the absorption and transmission spectra of the earth’s atmosphere reveals that the atmospheric blanket is transparent for infrared radiations between 8 and 13 micrometers. This small window brings us the opportunity to design/synthesize materials capable of radiating infrared electromagnetic waves in that range so that a substrate made of those materials, or coated with those novel materials cool down naturally and passively through radiative cooling, day and night. Our goal is to find an inexpensive structure capable of radiating heat in this interval composed of a large part of Cellulose, and Ethanol. This study aims to analyze whether cellulite materials are good candidates for radiative cooling. First, we have created a cellulose based gel-like structure and analyzed it by a visible light spectrometer. Second, the structure was put as layers on wood and glass, and analyzed by an FTIR spectrometer. Data was exported as an Excel file, and the graph was made by absorbance-wavenumber data. Analysis of the graph data demonstrated that Cellulose can radiate heat at ~10 micrometers. This research indicates that Cellulose can have a serious impact on radiative cooling and it could be a good substitute for other cooling chemicals.
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Dr. Thomas Loveland, Associate Professor, Department of Technology

Registration and Support
Ms. Wele Elangwe, Director, School of Graduate Studies
Mr. Preston Gross, Admissions Coordinator, School of Graduate Studies
Ms. Angela Young, Administrative Assistant, School of Graduate Studies
Mr. Zoe Johnson, Toxicology Program, Department of Natural Sciences
Mr. Jesu Raj Pandya, Food Science and Technology Program, Department of Agr, Food &Resource Sciences
Ms. Tyler Reid, Student Intern, Department Natural Sciences
Ms. Sandra Gere, Graduate Assistant, School of Graduate Studies

Abstracts, Program and Book of Abstracts
Dr. Thomas Loveland, Reviewer, School of Business and Technology
Ms. Amelia Potter, Producer, Department of Natural Sciences
Ms. Wele Elangwe, Reviewer, School of Graduate Studies

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

Moderators
Mr. Zoe Johnson, Chair, Doctoral Student, Toxicology Program, Department of Natural Sciences
Graduate Education Week Committees  (con’t)

Information Technology
Mr. Jeremy Townsend, Information Technology
Mr. Joe Smith, Information Technology
Ms. Amelia Potter, Department of Natural Sciences
Mr. Jesu Raj Pandya, Food Science and Technology Program, Department of Agr, Food & Resource Sciences
Mr. Brian Bergan-Aurand, CITOL
Ms. Tracey Dirusso, CITOL
Ms. Victoria Turner, CITOL

Volunteers
Mr. Zoe Johnson, Volunteers Coordinator, School of Graduate Studies, UMES
  UMES Graduate Students
  UMES Undergraduate Students
  UMBC Graduate Students
  UMBC Undergraduate Students
**POSTER JUDGES’ SCHEDULE**

Chair of the Judges’ Committee:  
Dr. Patrice Jackson-Ayotunde  (pjackson@umes.edu)

Judging occurs from Monday to Thursday  Uses prerecorded videos located at:

<table>
<thead>
<tr>
<th>JUDGE</th>
<th>SESSION</th>
<th>TIME Q&amp;A</th>
<th>LOCATION</th>
</tr>
</thead>
</table>
| Williams, Mark    | POSTER Faculty 1-5 | 8:45 a.m.-9:45 a.m. | Google Docs ????
| Craven, Cynthia   | POSTER Faculty 1-5 | 8:45 a.m.-9:45 a.m. |
| Hearne, Jennifer  | POSTER Faculty 1-5 | 8:45 a.m.-9:45 a.m. |
| Crawford, Maurice | POSTER Faculty 6-10 | 8:45 a.m.-9:45 a.m. |
| Bell, Tracy       | POSTER Faculty 6-10 | 8:45 a.m.-9:45 a.m. |
| Sauder, Deborah   | POSTER Faculty 6-10 | 8:45 a.m.-9:45 a.m. |
| Potter, Amelia    | POSTER Graduate 1-5 | 8:45 a.m.-9:45 a.m. |
| Kharel, Madan     | POSTER Graduate 1-5 | 8:45 a.m.-9:45 a.m. |
| Shaeffe, Greg     | POSTER Graduate 1-5 | 8:45 a.m.-9:45 a.m. |
| Tejada, Fred      | POSTER Graduate 6-10 | 8:45 a.m.-9:45 a.m. |
| Ayotunde, Patrice | POSTER Graduate 6-10 | 8:45 a.m.-9:45 a.m. |
| Grant, Sharone    | POSTER Graduate 6-10 | 8:45 a.m.-9:45 a.m. |
| Hasan, Khaled     | POSTER Graduate 11-15 | 8:45 a.m.-9:45 a.m. |
| Weaver, William   | POSTER Graduate 11-15 | 8:45 a.m.-9:45 a.m. |
| Hsia, Victor      | POSTER Graduate 11-15 | 8:45 a.m.-9:45 a.m. |
| Min, Byungrok     | POSTER Graduate 16-20 | 8:45 a.m.-9:45 a.m. |
| Loveland, Thomas  | POSTER Graduate 16-20 | 8:45 a.m.-9:45 a.m. |
| Wele, Elangwe     | POSTER Graduate 16-20 | 8:45 a.m.-9:45 a.m. |
| Kharel, Madan     | POSTER Graduate 21-25 | 8:45 a.m.-9:45 a.m. |
| Tejada, Fred      | POSTER Graduate 21-25 | 8:45 a.m.-9:45 a.m. |
| Ayotunde, Patrice | POSTER Graduate 21-25 | 8:45 a.m.-9:45 a.m. |
| Wang, Peter       | POSTER Graduate 26-30 | 8:45 a.m.-9:45 a.m. |
| Potter, Amelia    | POSTER Graduate 26-30 | 8:45 a.m.-9:45 a.m. |
| Purnell, Miriam   | POSTER Graduate 26-30 | 8:45 a.m.-9:45 a.m. |
| Amaye, Isis       | POSTER Undergraduate 1-4 | 8:45 a.m.-9:45 a.m. |
| Bediako, Bernice  | POSTER Undergraduate 1-4 | 8:45 a.m.-9:45 a.m. |
| Haywood, Rhashanda| POSTER Undergraduate 1-4 | 8:45 a.m.-9:45 a.m. |
| Amaye, Isis       | POSTER Undergraduate 5-7 | 8:45 a.m.-9:45 a.m. |
| Johnson, Zoe      | POSTER Undergraduate 5-7 | 8:45 a.m.-9:45 a.m. |
| Bediako, Bernice  | POSTER Undergraduate 5-7 | 8:45 a.m.-9:45 a.m. |
# ORAL JUDGES' SCHEDULE

Chair of the Judges’ Committee:  
Dr. Patrice Jackson-Ayotunde (pljackson@umes.edu)

<table>
<thead>
<tr>
<th>JUDGE</th>
<th>SESSION</th>
<th>TIME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>31* Williams, Mark</td>
<td>ORAL Faculty 1-5</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td>Room 11</td>
</tr>
<tr>
<td>32* Dabipi, I. K.</td>
<td>ORAL Faculty 1-5</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/bda08f1f958451cbbacdbf54e117ab">https://us.bbcollab.com/guest/bda08f1f958451cbbacdbf54e117ab</a></td>
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<tr>
<td>33* Hearne, Jennifer</td>
<td>ORAL Faculty 1-5</td>
<td>1:00 p.m. - 2:30 p.m.</td>
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</tr>
<tr>
<td>34 Bell, Tracy</td>
<td>ORAL Graduate 1-4, 6, 24</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td>Room 12</td>
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<tr>
<td>35 Wele, Elangwe</td>
<td>ORAL Graduate 1-4, 6, 24</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/eb49f06b84fedc8e6d423d24445c9">https://us.bbcollab.com/guest/eb49f06b84fedc8e6d423d24445c9</a></td>
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<tr>
<td>36 Dixit, Naveen</td>
<td>ORAL Graduate 1-4, 6, 24</td>
<td>1:00 p.m. - 2:30 p.m.</td>
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<tr>
<td>37 Monish, Das</td>
<td>ORAL Graduate 7-12</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td>Room 13</td>
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<tr>
<td>38 Zheng, Lisa</td>
<td>ORAL Graduate 7-12</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8f13377c1490e">https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8f13377c1490e</a></td>
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<tr>
<td>39 Tejada, Fred</td>
<td>ORAL Graduate 7-12</td>
<td>1:00 p.m. - 2:30 p.m.</td>
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<tr>
<td>40 Parveen, Salina</td>
<td>ORAL Graduate 13-18</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td>Room 14</td>
</tr>
<tr>
<td>41 Sauder, Deborah</td>
<td>ORAL Graduate 13-18</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0">https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0</a></td>
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<tr>
<td>42 Truong, Hoai-an</td>
<td>ORAL Graduate 13-18</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td></td>
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<tr>
<td>43** Ishaque, Ali</td>
<td>ORAL Graduate 19-23</td>
<td>1:00 p.m. - 2:15 p.m.</td>
<td>Room 15</td>
</tr>
<tr>
<td>44** Ayotunde, Patrice</td>
<td>ORAL Graduate 19-23</td>
<td>1:00 p.m. - 2:15 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/c4bc377c733e446fb43a0655dc061">https://us.bbcollab.com/guest/c4bc377c733e446fb43a0655dc061</a></td>
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<tr>
<td>45** Crawford, Maurice</td>
<td>ORAL Graduate 19-23</td>
<td>1:00 p.m. - 2:15 p.m.</td>
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<tr>
<td>46 Brown, Willie</td>
<td>ORAL Undergraduate 1-6</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td>Room 16</td>
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<tr>
<td>47 Ejigou, Kingsley</td>
<td>ORAL Undergraduate 1-6</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/5b632021e869e4931975c70c9281791b">https://us.bbcollab.com/guest/5b632021e869e4931975c70c9281791b</a></td>
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<tr>
<td>48 Loveland, Thomas</td>
<td>ORAL Undergraduate 1-6</td>
<td>1:00 p.m. - 2:30 p.m.</td>
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<tr>
<td>49 Bediako, Bernice</td>
<td>ORAL Undergraduate 7,9-12,15</td>
<td>1:00 p.m. - 2:30 p.m.</td>
<td>Room 17</td>
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<tr>
<td>50 Haywood, Rhashanda</td>
<td>ORAL Undergraduate 7,9-12,15</td>
<td>1:00 p.m. - 2:30 p.m.</td>
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<tr>
<td>51 Potter, Amelia</td>
<td>ORAL Undergraduate 7,9-12,15</td>
<td>1:00 p.m. - 2:30 p.m.</td>
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<tr>
<td>43** Ishaque, Ali</td>
<td>ORAL Undergraduate 13</td>
<td>2:15 p.m.</td>
<td>Room 15</td>
</tr>
<tr>
<td>44** Ayotunde, Patrice</td>
<td>ORAL Undergraduate 13</td>
<td>2:15 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/c4bc377c733e446fb43a0655dc061">https://us.bbcollab.com/guest/c4bc377c733e446fb43a0655dc061</a></td>
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<tr>
<td>45** Crawford, Maurice</td>
<td>ORAL Undergraduate 13</td>
<td>2:15 p.m.</td>
<td></td>
</tr>
<tr>
<td>31* Williams, Mark</td>
<td>ORAL Undergraduate 14</td>
<td>2:15 p.m.</td>
<td>Room 11</td>
</tr>
<tr>
<td>32* Dabipi, I. K.</td>
<td>ORAL Undergraduate 14</td>
<td>2:15 p.m.</td>
<td><a href="https://us.bbcollab.com/guest/bda08f1f958451cbbacdbf54e117ab">https://us.bbcollab.com/guest/bda08f1f958451cbbacdbf54e117ab</a></td>
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<tr>
<td>33* Hearne, Jennifer</td>
<td>ORAL Undergraduate 14</td>
<td>2:15 p.m.</td>
<td></td>
</tr>
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<td>52</td>
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</table>
### 3MT Judges’ Schedule

<table>
<thead>
<tr>
<th>Judge</th>
<th>Session</th>
<th>Time</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Mrs. Crystal Sankar, Executive Administrative Assistant to the General Counsel</td>
<td>3MT</td>
<td>9:45 a.m.–11:00 a.m.</td>
<td><a href="https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5">WEBLINK</a></td>
</tr>
<tr>
<td>Mr. Wayne Eguono Omagamre, Ph.D. student, Toxicology</td>
<td>3MT</td>
<td>9:45 a.m.–11:00 a.m.</td>
<td><a href="https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5">WEBLINK</a></td>
</tr>
<tr>
<td>Mrs. Donna Marie Price, Executive Administrative Professional I, Office of Academic Affairs</td>
<td>3MT</td>
<td>9:45 a.m.–11:00 a.m.</td>
<td><a href="https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5">WEBLINK</a></td>
</tr>
<tr>
<td>Mr. Josh Shockley, Grants Contracts Manager, Office of Research</td>
<td>3MT</td>
<td>9:45 a.m.–11:00 a.m.</td>
<td><a href="https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5">WEBLINK</a></td>
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### 3MT Moderators’ Schedule

<table>
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<tr>
<th>Moderator</th>
<th>Session</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Mr. Chinedu Ahuchaogu, Doctoral Student, Toxicology</td>
<td>3MT</td>
<td>9:45 a.m.–11:00 a.m.</td>
<td><a href="https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5">WEBLINK</a></td>
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# POSTER AND ORAL MODERATORS’ SCHEDULE

Chair of the Moderators’ Committee: Mr. Zoe Johnson (zcjohnson@umes.edu)

<table>
<thead>
<tr>
<th>Moderator</th>
<th>SESSION</th>
<th>TIME</th>
<th>LOCATION</th>
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<tr>
<td>1 Mr. Zoe Johnson, Toxicology, UMES</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 0 <a href="https://us.bbcollab.com/guest/9e4f3c27459f8a83713fa2a9bce0f5">https://us.bbcollab.com/guest/9e4f3c27459f8a83713fa2a9bce0f5</a></td>
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<tr>
<td>2 Dr. Alessandra Zimmerman. Executive Director-Proposal Analytics Inc.</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 1 <a href="https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417">https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417</a></td>
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<tr>
<td>3 Ms. Sherene Black, Toxicology, UMES</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 2 <a href="https://us.bbcollab.com/guest/bc5c0e8e955470c906232a92edf3b4">https://us.bbcollab.com/guest/bc5c0e8e955470c906232a92edf3b4</a></td>
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<tr>
<td>4 Ms. Laura Almodovar-Acevedo, MEES, UMES</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 3 <a href="https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110">https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110</a></td>
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<tr>
<td>5 Mr. Reuel Danquah, Toxicology Program, UMES</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 4 <a href="https://us.bbcollab.com/guest/39229038b0ba499487a84edeae6aeca">https://us.bbcollab.com/guest/39229038b0ba499487a84edeae6aeca</a></td>
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<tr>
<td>6 Ms. Cristina Santana, Veterinary Diagnostic and Production Animal Medicine, Iowa State University</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 5 <a href="https://us.bbcollab.com/guest/aa7ea84509794e0b575c004e08f0262">https://us.bbcollab.com/guest/aa7ea84509794e0b575c004e08f0262</a></td>
</tr>
<tr>
<td>7 Mr. Oluwagbemiga Nelson Ajayi, Department of Information Systems, UMBC</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 6 <a href="https://us.bbcollab.com/guest/37b0c9e559450ad1fd080eac411d47">https://us.bbcollab.com/guest/37b0c9e559450ad1fd080eac411d47</a></td>
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<tr>
<td>8 Ms. Kayle Krieg, MEES, UMBC</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 7 <a href="https://us.bbcollab.com/guest/b29fca7ead44cfa02caaa8d30f0c19">https://us.bbcollab.com/guest/b29fca7ead44cfa02caaa8d30f0c19</a></td>
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<tr>
<td>9 Ms. Madeline Farmer, MEES, UMES</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 8 <a href="https://us.bbcollab.com/guest/3e32b5a3c8c4e79480be903684dca">https://us.bbcollab.com/guest/3e32b5a3c8c4e79480be903684dca</a></td>
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<tr>
<td>10 Ms. Cy’Anna Scott, DNS, UMES</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 9 <a href="https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a02725a">https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a02725a</a></td>
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<tr>
<td>11 Ms. Ijeoma Ngoka, Toxicology, UMES</td>
<td>POSTER Session</td>
<td>8:45 a.m.-9:45 a.m.</td>
<td>Room 10 <a href="https://us.bbcollab.com/guest/ed9b55c9f1b41b9a8d943b5607e6">https://us.bbcollab.com/guest/ed9b55c9f1b41b9a8d943b5607e6</a></td>
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<tr>
<td>12 Ms. Sherene Black, Toxicology, UMES</td>
<td>ORAL Session</td>
<td>1:00 pm to 2:30 pm</td>
<td>Room 11 <a href="https://us.bbcollab.com/guest/eb49f06ddfd8f6e28ed423d24445c9">https://us.bbcollab.com/guest/eb49f06ddfd8f6e28ed423d24445c9</a></td>
</tr>
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<td>13 Ms. Cristina Santana, Veterinary Diagnostic and Production Animal Medicine, Iowa State University</td>
<td>ORAL Session</td>
<td>1:00 pm to 2:30 pm</td>
<td>Room 12 <a href="https://us.bbcollab.com/guest/837471e538be452893613ab4ae117ab">https://us.bbcollab.com/guest/837471e538be452893613ab4ae117ab</a></td>
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<tr>
<td>14 Ms. Ijeoma Ngoka, Toxicology, UMES</td>
<td>ORAL Session</td>
<td>1:00 pm to 2:30 pm</td>
<td>Room 13 <a href="https://us.bbcollab.com/guest/6ae6eb5831bc428e8e8ff13371c1490a">https://us.bbcollab.com/guest/6ae6eb5831bc428e8e8ff13371c1490a</a></td>
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<tr>
<td>15 Ms. Katrina Kelly, MEES, UMES</td>
<td>ORAL Session</td>
<td>1:00 pm to 2:30 pm</td>
<td>Room 14 <a href="https://us.bbcollab.com/guest/b8f1f9f598451cbcbcada3a417ab">https://us.bbcollab.com/guest/b8f1f9f598451cbcbcada3a417ab</a></td>
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<tr>
<td>16 Ms. Kayle Krieg, MEES, UMES</td>
<td>ORAL Session</td>
<td>1:00 pm to 2:30 pm</td>
<td>Room 15 <a href="https://us.bbcollab.com/guest/c4bc377c73e446fbd43a0d655d061">https://us.bbcollab.com/guest/c4bc377c73e446fbd43a0d655d061</a></td>
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<tr>
<td>17 Mr. Reuel Danquah, Toxicology Program, UMES</td>
<td>ORAL Session</td>
<td>1:00 pm to 2:30 pm</td>
<td>Room 16 <a href="https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a02725a">https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a02725a</a></td>
</tr>
<tr>
<td>18 Mr. Oluwagbemiga Nelson Ajayi, Department of Information Systems, UMBC</td>
<td>ORAL Session</td>
<td>1:00 pm to 2:30 pm</td>
<td>Room 17 <a href="https://us.bbcollab.com/guest/837471e538be452893613ab4ae117ab">https://us.bbcollab.com/guest/837471e538be452893613ab4ae117ab</a></td>
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</table>
GRADUATE PROGRAM DIRECTORS

Applied Computer Science, M.S.
Dr. Gurdeep Hura

Career & Technology Education, M.Ed.
Dr. Thomas Loveland

Chemistry, M.S.
Dr. Victoria Volkis

Counselor Education, M.Ed.
Dr. Cheryl Bowers

Criminology and Criminal Justice, M.S.
Dr. Nelsata Waters Jones

Education Leadership, Ed.D.
Dr. Derry Stufft

Food & Agricultural Sciences, M.S.
Dr. Jurgen Schwarz

Food Science and Technology, Ph.D.
Dr. Caleb Nindo

Marine Estuarine Environmental Sciences, Ph.D. and M.S.
Dr. Maurice Crawford

Master of Arts In Teaching, M.A.T
Dr. Charles Baldwin

Organizational Leadership, Ph.D.
Dr. Prince Attah

Pharmaceutical Sciences, Ph.D. & M.S.
Dr. Mark Simmons

Physical Therapy, D.P.T.
Dr. Michael Rabel

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

Rehabilitation Counseling, M.S.
Dr. Leslie Santos

Special Education, M.Ed.
Dr. Patricia Goslee

Toxicology, Ph.D. and M.S.
Dr. Ali Ishaque
DIVISION of ACADEMIC AFFAIRS  
School of Graduate Studies  
GRADUATE COUNCIL  
2019-2022  

<table>
<thead>
<tr>
<th>School of Agricultural and Natural Sciences</th>
<th>Term</th>
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<tbody>
<tr>
<td>Dr. Salina Parveen</td>
<td>2019-2021</td>
</tr>
<tr>
<td>Dr. Caleb Nindo</td>
<td>2019-2021</td>
</tr>
<tr>
<td>Dr. Paulinus Chigbu</td>
<td>2020-2022</td>
</tr>
<tr>
<td>Dr. Ahmed Elnabawi</td>
<td>2020-2022</td>
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</tbody>
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<table>
<thead>
<tr>
<th>School of Business and Technology</th>
<th>Term</th>
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</thead>
<tbody>
<tr>
<td>Dr. Dinesh Sharma</td>
<td>2019-2021</td>
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<tr>
<td>Dr. Edward Chapin</td>
<td>2019-2021</td>
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<tr>
<td>Dr. Gurdeep Hura</td>
<td>2020-2022</td>
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<tr>
<td>Dr. Thomas Loveland</td>
<td>2020-2022</td>
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</tbody>
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<thead>
<tr>
<th>School of Education, Social Science, and the Arts</th>
<th>Term</th>
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<tbody>
<tr>
<td>Dr. Kimberly Poole-Sykes</td>
<td>2019-2021</td>
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<tr>
<td>Dr. Patricia Goslee</td>
<td>2019-2021</td>
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<tr>
<td>Dr. Nelseta Walters-Jones</td>
<td>2020-2022</td>
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<tr>
<td>Dr. Lily Tsai</td>
<td>2020-2022</td>
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<tr>
<th>School of Pharmacy and Health Professions</th>
<th>Term</th>
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<tr>
<td>Dr. Les Keniston</td>
<td>2019-2021</td>
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<tr>
<td>Dr. Miguel Martin</td>
<td>2019-2021</td>
</tr>
<tr>
<td>Dr. Patrice Jackson-Ayotunde</td>
<td>2020-2022</td>
</tr>
<tr>
<td>Dr. Madan Kharel</td>
<td>2020-2022</td>
</tr>
</tbody>
</table>

Student Representative: Ms. Jocelyn Simmons, President-Graduate Student Government  
Doctoral student in Food and Agricultural Sciences
DIVISION of ACADEMIC AFFAIRS
School of Graduate Studies

Graduate Council Committee Members
2020-2021

Committee on Academic Appeals
Committee on Academic Appeals: It shall be the function of this committee to review claims from students who appeal academic decisions which affect their status in the School of Graduate Studies.

Dr. Caleb Nindo, Chair
Dr. Gurdeep Hura
Dr. Kingsley Ejiogu
Ms. Jocelyn Simmons

Committee on Academic Standards
Committee on Academic Standards: It shall be the function of this committee to recommend to the Graduate Council standards for graduate programs, including off-campus work.

Dr. Edward Chapin, Chair
Dr. Patricia Goslee
Dr. Nelseta Walters-Jones
Dr. Ahmed Elnabawi

Committee on Programs and Courses
Committee on Programs and Courses: It shall be the function of this committee to determine that new or revised programs and courses meet established standards and shall make recommendations to the Graduate Council.

Dr. Patrice Jackson-Ayotunde, Chair
Dr. Miguel Martin
Dr. Caleb Nindo
Dr. Lily Tsai

Committee on Graduate Faculty
Committee on Graduate Faculty: It shall be the function of this committee to make recommendations to the Graduate Council concerning the requirements for membership on the Graduate Faculty, to review the Graduate Faculty membership, and to receive, evaluate and make recommendations to the Assembly concerning nominations of individuals to the Graduate Faculty.

Dr. Salina Parveen, Chair
Dr. Les Keniston
Dr. Gurdeep Hura
Dr. Madan Kharel

Committee on Research
Committee on Research: It shall be the function of this committee to explore means of increasing University and other support for graduate and faculty research, to promote an atmosphere conducive to research, and to make recommendations to the Graduate Council concerning any problems which may arise from research supported by grants or contracts.

Dr. Kimberly Poole-Skyes, Chair
Dr. Dinesh Sharma
Dr. Paulinus Chigbu

Committee on Student Life
Committee on Student Life: It shall be the function of this committee to recommend to the Graduate council ways and means of enhancing the welfare of the graduate students.

Ms. Jocelyn Simmons, Chair
Dr. Patricia Goslee

Committee on Elections
Committee on Elections: It shall be the function of this committee to conduct all elections and referenda.

Dr. Thomas Loveland, Chair
Dr. Lily Tsia
Dr. LaKeisha Harris - ex-officio member
THANK YOU AND ACKNOWLEDGEMENTS

11th Annual Graduate Studies Regional Research Symposium 2021

Online Via Blackboard Collaborate

“Global Approaches: Multidisciplinary Research in the 21st Century ”

THANK YOU!

SANS CENTER

For all your Hard Work and Generous Contribution

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THANK YOU!

CITOL

For all your Hard Work and Generous Contribution
Notes
UMES Campus Map

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

CAMPUS ADDRESS:
UMES
University Drive
Princess Anne, MD
21853

CAMPUS FASCIMILE:
410-651–7739

NOTE: Parking Lot Designations are indicated by Letters

Buildings on Map...

1. Kiek Hall
2. Richard Herron Center
3. Ella Fitzgerald Performing Arts Center
4. Student Development Center
5. Nance Hall
6. Court Plaza
7. Wicomico Hall
8. Tower Gym
9. William F. Hays Center
10. Student Services Center
11. Reed Hall (Admissions and Financial Aid)
12. John T. Williams Administration Building
13. Womax Hall
14. Morton Hall
15. George Washington Carver Science Building
16. Somerset Hall
17. Wilson Hall
18. Frederick Douglass Library
19. Truxal Hall
20. Thomas/Griggs Arts and Technology Center
21. Early Childhood Research Center
22. Student Apartments
23. Plaza Hall
24. Residence Life/Student Clusters
25. Turner Airway Science Center
26. Sports Facilities
27. Linda Brown Building
28. University Terrace
29. Food Science and Technology Building
30. Physical Plant
31. Hazel Hall
32. Public Safety
33. Swine Research Facilities Center
34. Crop Research and Aquaculture Building
35. Agriculture Research Building
36. Ramsaker Hall
37. Sparkling Hall
38. Temporary Classroom Building 1
39. Purchasing
40. Alumni House
41. Poultry Research Center
42. Charles Drew Student Health Center
43. Commercial Greenhouse
44. Hawks Landing
45. President's House
46. Harford Hall
47. Access & Success Building
48. WUSM Radio Station
See you next year
April 2022

www.umes.edu/Symposium2022

6th Graduate Education Week
and 11th Regional Research
Symposium

April 22, 2021

School of Graduate Studies
Engineering and Aviation
Sciences Complex
Suite 3041 - 3046
Princess Anne, MD 21853
Tel: 410.651.6407

www.umes.edu/grad