

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



DIVISION of ACADEMIC AFFAIRS
School of Graduate Studies

Call for Abstracts

University of Maryland Eastern Shore
Sixth Annual Graduate Education Week
Eleventh Annual Graduate School Regional Research Symposium
Engineering & Aviation Sciences Complex
April 22, 2021
8:00 a.m.- 5:00 p.m.

The School of Graduate Studies at the University of Maryland Eastern Shore is pleased to announce its 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](http://www.umes.edu/Symposium2021)

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,

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

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



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Office of the President



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,

A handwritten signature in black ink that reads "Heidi M. Anderson".

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

Ms. Alissa Carr



Associate Vice President/
Director of Marketing and
External Relations

Dr. Keith Davidson



Director of Athletics



Mr. Matthew Taylor



General Counsel



DIVISION of ACADEMIC AFFAIRS
Office of the Provost and Vice President

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 multi-disciplinary 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,

A handwritten signature in black ink, appearing to read "Nancy S. Niemi".

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





UNIVERSITY of MARYLAND
EASTERN SHORE

DIVISION of ACADEMIC AFFAIRS

School of Graduate Studies

GREETINGS FROM THE DEAN

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

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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

Graduate Education Week

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

Graduate Education Week

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

Graduate Education Week

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&authsr=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

Graduate Education Week

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

Graduate Education Week

10:00 AM — 11:00 AM **Thesis Defense Ms. Wele Elangewe**
(Graduate Studies and Research, UMES)

WEBLINK: [https://zoom.us/j/99882721266?](https://zoom.us/j/99882721266?pwd=VXhXcFM3RnlKcHZkbXQwS3lXdnpFQT09)
[pwd=VXhXcFM3RnlKcHZkbXQwS3lXdnpFQT09](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

LINKS ARE LOCATED IN BLACKBOARD

- 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>)
- 8:30a.m. - 8:45 a.m. **Greetings**
(WEBLINK: <https://us.bbcollab.com/guest/82cb815ad0204903abc5d6375dcbfeca>)

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/bc5c0e8e95f5470c90b232a092edfb34 |
| PG1 to PG4 | Room 3 | https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110 |
| PG5 to PG8 | Room 4 | https://us.bbcollab.com/guest/39229038b0ba499487a84edeaeac6aeca |
| PG9 to PG12 | Room 5 | https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262 |
| PG13 to PG16 | Room 6 | https://us.bbcollab.com/guest/d37b0fc9d699440dad1fd088eca11d47 |
| PG17 to PG20 | Room 7 | https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19 |
| 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/ed9b85fc9f184184ba89d8493b5607ef |

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

GRADUATE STUDIES REGIONAL RESEARCH SYMPOSIUM 2021

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

11:00a.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/bda08f1f9f58451cbbacbdbfb4e117ab
OG1 to OG 6	Room 12	https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9
OG7 to OG12	Room 13	https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e
OG13 to OG19	Room 14	https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0
OG20 to OG23	Room 15	https://us.bbcollab.com/guest/c4bc377c733e446bfd43a0d655dc061
OU1 to OU6	Room 16	https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b
OU7 to OU12	Room 17	https://us.bbcollab.com/guest/b8f1f906dfc4ad09ece4795128c5c22
OU13 (2:15)	Room 15	https://us.bbcollab.com/guest/c4bc377c733e446bfd43a0d655dc061
OU14 (2:15)	Room 11	https://us.bbcollab.com/guest/bda08f1f9f58451cbbacbdbfb4e117ab

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

**Faculty
(Poster 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 :



DNS SANS UMES



GOT 2B GLUED BUT NOT GORILLA GLUED

FACILITATED BY:
WILLIAM WEAVER PH.D.
ANALYTICAL CHEMSITRY

MEETING LINK:
[HTTPS://US.BBCOLLAB.COM/GUEST/22CCF0C23B7B4A339F543D22B62AF0B1](https://us.bbcollab.com/guest/22ccf0c23b7b4a339f543d22b62af0b1)



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
Bobenko

Join via Blackboard



@UMES_Grad
@umes_gradstudies

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



@UMES_Grad
@umes_gradstudies

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/5c99bf05886b424fa5e51816a9aa9fc5>

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/99882721266?pwd=VXhXcFM3RnlKcHZkbXQwS3lXdnpFQT09>

Meeting ID: 998 8272 1266
Passcode: 459923

**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.



GRADUATE EDUCATION WEEK SESSIONS SCHEDULES (Monday April 19, 2021 to Friday April 23, 2021)

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/a10f6c06517c4ba1966da88631472096>

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&authsr=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 Elangewe
(Graduate Studies and Research, UMES)

WEBLINK: <https://ZOOM.us/j/99882721266?pwd=VXhXcFM3RnlKcHZkbXQwS3lXdnpFQT09>
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



PARTICIPANT: ABSTRACTS

POSTER PRESENTATION ABSTRACT TITLES AND PRESENTERS

UMES Research Symposium Abstracts 2021

POSTER FACULTY

- PF1 Amyotrophic Lateral Sclerosis Disease Progression: The Usefulness and Limitations of Functional Outcome Measures.** Dr. Michelle SanFillipo.32
- PF2 Clinical Supervision and Coronavirus (COVID-19) Pandemic: Implications for Rural Site Supervisors in Clinical Rehabilitation Education.** Dr. Bryan Gere, Dr. Leslie M. Santos, and Dr. William Talley. 32
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417>
- PF3 Comparing Acute:Chronic Workload Ratios in Recreational Runners.** Yasmine Darrehmane, Kayleigh Kinnelly, Sara Shaw, Ethan Wolff, and Dr. Katherine James.32
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417>
- PF4 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. 33
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417>
- PF5 Effect of Container Size and Plant Source on Growth and Physiological Characteristics of Greenhouse Ginger.** Gabrielle Morris, Lurline Marsh, and Brett Smith.33
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34>
- PF6 Impacts of Poultry Manure Placement Methods and Cover Crop Combination on Soil Health of Organic Cropped Field Sites.** Petrina McKenzie-Reynolds, Dr. F. Hashem, Dr. P. Millner, Dr. A. Allen, Dr. L. Marsh, A. Kenney, B. Smith, Dr. Salina Parveen and Dr. A.S. Collick.34
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34>
- PF7 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 Nan, Dr. Adel H. Karara, Barbara Goldberg and Rekha Shukla.34
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34>
- PF8 Students' Mental Health and Well-Being During The COVID-19 Pandemic.** Lana Sherr, PharmD, BSPHarm, Amna Paracha, PharmD Candidate, Hoai-An Truong, PharmD, MPH, FAPhA, FNAP, Lynn Lang, PhD. 34
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34>
- PF9 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. 35
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417>
- PF10 STEM MAJORS: Yes, YOU Can Help Improve Science Education for Minority Students!!!** Dr. Deborah Sauder, Dr. Tracy Bell and Sherene Black.35
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5>



POSTER GRADUATE

- PG1 African American Elders' Attitude towards Depression.** Taylor Winston and Dr. Lisa Zheng.36
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110>
- PG2 Agricultural Entomophagy: Insect Rearing for Human Consumption, Feed and Biological Controls.** Ebony Jenkins and Dr. Simon Zebelo.36
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110>
- PG3 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.36
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110>
- PG4 Assessing the Impact of COVID-19 on Food Insecurity and Risk of Developing Type 2 Diabetes on Two University Campuses.** Abbey Kane^{1*}, Bethany Balentine^{2*}, Sarah Harbinson³, and Michael Kirtsos⁴, MS, RDN, CSSD,LDN.37
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110>
- PG5 Assessment of Doctor of Physical Therapy Students' Empathy for Patients who Experience Dyspnea After Pulmonary Disease Simulation through Restrictive Inspiratory Breathing.** Robin Edwards, Connor Hibbs, Daniel Kramer, Tyler Logan and George Steer 37
- PG6**
- PG7 Bitter Gourd (*Momordica charantia* L) Cultivation on the Delmarva Peninsula.** Aduteye Erasmus Kabu, Stanley Meli, and Naveen K Dixit. 37
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/39229038b0ba499487a84edeaec6aeca>
- PG8 Comparing Acute:Chronic Workload Ratios in Recreational Runners.** Yasmine Darrehmane, Kayleigh Kinnelly, Sara Shaw, Ethan Wolff, and Dr. Katherine James. 38
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/39229038b0ba499487a84edeaec6aeca>
- PG9 Determining Optimal Physical Therapy Assessment of Gait and Balance Throughout the ALS Disease Progression.** Emily Farley, Cecilia Silva-Manrique, Dylan Woodward, Michelle Sanfilippo and Dr. Les Keniston. 38
- PG10 Effects of Cannabidiol (CBD) on HSV-1 Gene Expression and Replication in Human Dorsal Root Ganglia (DRG) Neurons.** Yu-Chih Chen*, Robert W Figliozzi, Qiaojuan Zhang, Dr. Miguel Martin-Caraballo, and Dr. Shaochung V. Hsia.38
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262>
- PG11 Identification and Functional Analysis of MicroRNA-mRNA Reciprocal Pairs Involved in mTOR and VEGF Signaling in Prostate Cancers.** Himali Gujrati and Dr. Bi-Dar Wang. 39
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262>
- PG12 Optimizing Techniques for Feminized Seed Production in *Cannabis sativa* L.** Erik Lindsay, Michael Folland, Carissa Jackson, Gabrielle Johnson, Papaiah Sardaru, Dr. Behnam Khatabi and Dr. Sadanand Dhekney. 39
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262>
- PG13 Physical Activity Interventions and Depression Outcome Measures Commonly Used for Individuals with Congestive Heart Failure: A Systematic Review.** Raquel Davis, Annelise Brumbley, Shantell Enonuya, and Dr. Michael Rabel.40
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262>



- PG14** Prolactin Treatment Reduces Lipopolysaccharide Induced Inflammation in Pregnant Mice. Chad Carrig and Dr. Sandra E. Reznik. 40
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/d37b0fc9d699440dad1fd088eca11d47>
- PG15** Rising from the Floor in Persons with a Transtibial Amputation: A Pilot Study. Dr. D, Klima, D, Oakley, B, Nicholson, C, Banas, J, and Rothschild, R. 41
- PG16** Structure Activity Relationship Study and Biological Investigation of Novel N-Substituted Benzamide Enaminones as Potential Anticonvulsant Agents. Isis J. Amaye, Yayin Fang, Miguel Martin and Dr. Patrice Jackson-Ayotunde. 41
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/d37b0fc9d699440dad1fd088eca11d47>
- PG17** Student Pharmacists' Perceptions of Online Learning: Internal, Instructor, and Course Factors. Mitkumar Patel, Alyssa Reese, Blair Yesko, Gregory K. Shaeffer, MBA, RPh, FASHP, Hoai-An Truong, PharmD, MPH, FAPhA, FNAP. 42
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/d37b0fc9d699440dad1fd088eca11d47>
- PG18** The Benefits of Incorporating Powerlifting into Exercise Programs: A Narrative Review. Conor Walsh, Rebecca Johnson, Akanni Salako, and Dr. Michael Rabel. 42
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>
- PG19** The Design, Synthesis And Pre-Clinical Target Identification Studies Of Novel Fluorinated Enaminones For the Treatment of Epilepsy. Rhashanda Haywood and Dr. Patrice Jackson-Ayotunde 42
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>
- PG20** 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 Pouloupoulos, Maria Stratakos, Dr. Cindy H. Gill and Dr. Mary E. Layshock. 43
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>
- PG21** The Impact of COVID-19 and Diabetes Risk Associated with Fast Food Consumption Among College Students Attending Two Separate Universities. Kathryn Oakes; Keith Bratley, Staci Owens, and Michael Kirtsos, MS, RDN, CSSD, LDN. 43
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>
- PG22** The Impact of Shoe Wear on Trunk and Lower Extremity Muscle Activation: A Systematic Review. Kylie Archibald, Evann Slaughter, Margaret Lenz, Miguel Pereyra, and Dr. Michael Rabel. 44
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>
- PG23** The Timed Supine to Stand Test in Older Adult: A Systematic Review. Nicholas Barbely, Shannon Collins, Christopher Kunkel, Alexandria Ramos, and Dr. Dennis Klima. 44
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>
- PG24** Tracing Food Web Dynamics in the Maryland Coastal Bays (MCBs) Using Gut Content, Fatty Acids, Stable Isotopes, and Mercury Analyses. Chelsea Richardson, Dr. Ali Ishaque and Dr. Paulinus Chigbu. 45
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>
- PG25** Using Plant Growth Promoting Rhizobacteria to Enhance Defense Related Genes and Biochemical Changes Against Corn Earworm. Jocelyn Simmons, Tigist Tolosa, and Dr. Simon Zebelo. 45
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>
- PG26** Visual Motion Capture and Analysis. Colin Donovan SPT, CSCS., Allyson Dover SPT, and Dr. Les Keniston. 45
- PG27** Opioids, A Double Edges Sword. Shahin Azadikhah* and Khaled Hasan, MD, MS, Ph.D. 46
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/39229038b0ba499487a84edeae6aeca>



POSTER UNDERGRADUATE

- PU1 African-American Youth Suicides: A Systematic Review of The Scholarly Literature.** Tyrese Milbourne and Dr. Brocato.47
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>
- PU2 Cover Crops for Horseweed/Marestail (*Conyza canadensis* (L.) Cronq.) Management in Soybean.** Edwin Kipruto, Earle Canter, and Dr. Naveen K Dixit. 47
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>
- PU3 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.47
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>
- PU4 Evaluation of Virulence Genes of *Salmonella* Recovered from Seafood.** Adib M. Adnan, Dr. Salah Elbashir, Dr. Fawzy Hashem, and Dr. Salina Parveen..48
9:30 a.m. Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>
- PU5 Exploring Antibiotic Producing *Streptomyces* from Soil in Maryland.** Brittney Whitt, Jennifer Ossai, and Dr. Behnam Khatab. 48
8:45 a.m. Weblink: <https://us.bbcollab.com/guest/ed9b85fc9f184184ba89d8493b5607ef>
- PU6 Nanotechnology for the Management of Multiple Plant Pathogens.** Macdonard Mutakyawa and Dr. Naveen K Dixit.48
9:00 a.m. Weblink: <https://us.bbcollab.com/guest/ed9b85fc9f184184ba89d8493b5607ef>
- PU7 Surveying Viral Pathogens Infecting Soybean On The Delmarva Peninsula.** Destiny T. Parker, Dr. Erik M. Lindsay, Dr. Papaiah Sardaru, Dr. Sadanand Dhekney and Dr. Behnam Khatabi. 49
9:15 a.m. Weblink: <https://us.bbcollab.com/guest/ed9b85fc9f184184ba89d8493b5607ef>



ORAL FACULTY

- OF1** Creation of a Bidirectional Referral System Using Prescribewellness to Improve Diabetes and Hypertension. Dr. Yen Dang and Dr. Lana Sherr. 50
 1:00 p.m. Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>
- OF2** Flipped Classroom Teaching: What Have We Learned? Dr. Madan K. Kharel.50
 1:15 p.m. Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>
- OF3** Molecular Characterization of *Barley Virus G* from Switchgrass and Construction of an Infectious Clone. Dr. Papaiah Sardaru, Dr. Ruying Chang, Dr. Kamil J. Alzayady, Dr. Sadanand A. Dhekney, Dr. Martha Malapi-Wight and Dr. Behnam Khatabi.50
 1:30 p.m. Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>
- OF4** Optimizing *In Vitro* Culture Techniques for Genetic Improvement of Industrial Hemp (*Cannabis sativa* L.). Sadanand Dhekney, Gabrielle Johnson, Carissa Jackson, Erik Lindsay, Michael Foland, Papaiah Sardaru and Dr. Behnam Khatabi.51
 1:45 p.m. Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>
- OF5** When Phyto-Chemistry Meets Material Science. Dr. Victoria V. Volkis. 51
 2:00 p.m. Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>

ORAL GRADUATE

- OG1** 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. 52
 1:00 p.m. Weblink: <https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9>
- OG2** 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. 52
 1:15 p.m. Weblink: <https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9>
- OG3** 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. 52
 1:30 p.m. Weblink: <https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9>
- OG4** Isolation, Identification and Biological Characterization of Soil Streptomyces in Controlling Foodborne Pathogens. Jennifer Ossai, Dr. Behnam Khatabi, Dr. Salina Parveen³ and Dr. Madan Kharel.53
 1:45 p.m. Weblink: <https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9>
- OG5** Blockchain and Democratic Elections. Sabo Joseph.53
- OG6** Career Technical Education Partnerships: Facilitations and Barriers. Jerry Kelley. 53
 2:15 p.m. Weblink: <https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9>
- OG7** Dairy Logistics Supply Chain Using Blockchain Technology. Cui Fang and Dr. Weiwei Zhu Stone54
 1:00 p.m. Weblink: <https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e>



- OG8** Detection and Validation of Volatile Organic Compound, Gamma-butyrolactone in Herpes Simplex Virus Type-1 Acute Infection. Faith Osinaga and Dr. Victor Hsia.54
1:15 p.m. Weblink: <https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e>
- OG9** Effects of Drying and Extraction Conditions on Phytonutrient Retention in *Hibiscus sabdariffa* L. Calyx Extract. Megan Reid¹, Ms. Corrie Cotton, Dr. Byungrok Min, Dr. Jurgen Schwarz, and Dr. Caleb Nindo.54
1:30 p.m. Weblink: <https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e>
- OG10** Effects of Nano-Zinc-Oxide (NZO) on Root Rot Fungi in Soybean. Angelo Crump* and Dr. Naveen K Dixit.55
1:45 p.m. Weblink: <https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e>
- OG11** Evaluating the Effect of Hemp Drying Methods on Cannabidiol (CBD) Content. S.S. Henry, Brandon Jackson¹, Dr. Tigist Tolosa, Dr. Victoria Volkis and Dr. Simon Zebelo. 55
2:00 p.m. Weblink: <https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e>
- OG12** Evaluating Physiological and Immune Responses of Tanner Crab (*Chionoecetes bairdi*) to *Hematodinium* sp. Infection. Shanelle Haughton, Dr. Pamela Jensen, Dr. Joseph Pitula.55
2:15 p.m. Weblink: <https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e>
- OG13** 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. 56
1:00 p.m. Weblink: <https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0>
- OG14** Gender Identity: A Multi-Theoretical Approach to Student Development. Ms. Stephanie Hallowell, Dr. Leslie Santos, Jessie Cavolt and Dr. Heather Holmes.56
1:15 p.m. Weblink: <https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0>
- OG15** Isolation, identification, and extraction of antimicrobial compounds from soil-derived *Non-Streptomyces* spp. Chinedu Ahuchaogu, Jennifer Ossai, Dr. Madan Kharel, Dr. Sadanand A. Dhekney and Dr. Behnam Khatabi.56
1:30 p.m. Weblink: <https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0>
- OG16** Physical Therapist' Knowledge, Beliefs and Self-efficacy Regarding Bone Health and Osteoporosis. Sauber Poulaopoulos PUNCHIBEWAGE.57
1:45 p.m. Weblink: <https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0>
- OG17** 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 PUNCHIBEWAGE-DON, Dr. Salina Parveen, Dr. Jurgen Schwarz, Lindsey Hamill, Dr. Caleb Nindo, Dr. Parker Hall and Dr. Bob Vimini.57
2:00 p.m. Weblink: <https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0>
- OG18** Teacher Perceptions Regarding Teaching African American Studies to High School Students in a Maryland Urban Public School Setting. Parfait.57
2:15 p.m. Weblink: <https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0>
- OG19** The Efficacy of Educational Sustainable Development Lessons and Instruction in the United States and Japan. Kelly Bryant.57
1:00 p.m. Weblink: <https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061>
- OG20** 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.57
1:15 p.m. Weblink: <https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061>



- OG21** The Impact of the Strategic Interventions Used to Prevent Special Education Services Provided to Black Males. Boli Kabwasa* and Dr. Patrica Goslee. 58
1:30 p.m. Weblink: <https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061>
- OG22** The Influences of Cultural Management on Phenolic Compound and Sugar Content in Aronia mitschurinii - a Four Year Comparison. Breann Green, Dr. Andrew Ristvey and Dr. Victoria Volkis. 59
1:45 p.m. Weblink: <https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061>
- OG23** The Use of Chitin and its Derivatives in Reversible Carbon Dioxide Sequestration. Preeti Sharma and Dr. Victoria Volkis. 59
2:00 p.m. Weblink: <https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061>
- OG24** Classification of a Small Tree Defects Dataset Using ResNet-50 Architecture and Data Augmentation. Arjun Dixit* and Dr. Yeong-Nain Chi. 60
2:00 p.m. Weblink: <https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9>

ORAL UNDERGRADUATE

- OU1** Application of Extracts from Super-Fruits and Medical Herbs as Organic Pesticides, Amal Suleiman Adamu, Yei-hawa Kulanda, Mark Joseph, Carson Cohen, Dr. Simon Zebelo and Dr. Victoria V. Volkis. 61
1:00 p.m. Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>
- OU2** Development of a Portable Device Capable of Gauging Ripeness in Fruits Rich in Sugars and Anthocyanins. Ezra Cable. 61
1:15 p.m. Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>
- OU3** Development of an All-Natural, Organic Power Drink from Aronia Berries. Bokary Sylla, Ayanna E. Lynn, Mohammad Abdelmotalab, Jordan R. Brooks, Itohan R. Eromosele, Dr. Andrew G. Ristvey and Dr. Victoria V. Volkis. 61
1:30 p.m. Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>
- OU4** Experimentation of Machine Learning Usage for Mental Health Studies. Nicholas Waugh and Dr. Mark William. 62
1:45 p.m. Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>
- OU5** Exploring the Effects of having Pets on Residential College Students during the COVID-19 Pandemic. Aniyah Smith and Dr. Lisa Zheng. 62
2:00 p.m. Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>
- OU6** Exploring The Impacts of COVID 19 on Physical and Mental health of HBCU College Athletes. Shemar Parkera and Dr. Lisa Zheng. 62
2:15 p.m. Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>
- OU7** Functional Characterization of Insulin Receptor and NHE3 in Zebrafish Kidney. Iyinyeoluwa 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
- OU9** Insulin Receptor Signaling And Zinc In The Zebrafish Kidney. Brianna Gaskins, Reneece Skeen 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/c4bc377c733e446fbdf43a0d655dc061>
- 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>



POSTER FACULTY

PF1

Not Competing

**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.

PF2 9:00 a.m.

Weblink: <https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417>

Clinical Supervision and Coronavirus (COVID-19) Pandemic: Implications for Rural Site Supervisors in Clinical Rehabilitation Education

**Dr. Bryan Gere, Dr. Leslie M. Santos and
Dr. William Talley**

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

Supervised practicum and internship are pre-eminent

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.

PF3 9:15 a.m.

Weblink: <https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417>

Comparing Acute:Chronic Workload Ratios in Recreational Runners

Yasmine Darrehmane^{1*}, 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



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/f9c79c1e23d848b6b24cd9ea10f52417>

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

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

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 Morris^{1*}, Lurline Marsh¹, and Brett Smith¹
1Department of Agriculture, Food, and Resource Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

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 $\mu\text{mol m}^{-2}$) 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.

PF6 9:00 a.m.

Weblink: <https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34>

Impacts of Poultry Manure Placement Methods and Cover Crop Combination on Soil Health of Organic Cropped Field Sites

Petrina McKenzie-Reynolds^{1*}, 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.

PF7 9:15 a.m.

Weblink: <https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34>

MADDP 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 Nan^{1*}, Dr. Adel H. Karara¹, Barbara Goldberg² and Rekha Shukla²

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 (MADDP) program is designed to provide hands-on laboratory experience and mentoring to underserved minority high school students to stimulate their interest in pursuit of 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- surveys 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.

PF8 9:30 a.m.

Weblink: <https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34>

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

Lana Sherr, PharmD, BSP Pharm¹, Amna Paracha, PharmD Candidate^{1*}, Hoai-An Truong, PharmD, MPH, FAPhA, FNAP^{1*}, 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-



marily 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.^{1*} and Patrick Makary, Ph.D.¹

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.

POSTER GRADUATE

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

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.

PG2 9:00 a.m.

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

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.

PG3 9:15a.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.



PG4 9:30 a.m.

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

Assessing the Impact of COVID-19 on Food Insecurity and Risk of Developing Type 2 Diabetes on Two University Campuses

Abbey Kane^{1*}, Bethany Balentine^{2*}, Sarah Harbinson³, 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.

PG5

Assessment of Doctor of Physical Therapy Students' Empathy for Patients Who Experience Dyspnea After Pulmonary Disease Simulation through Restrictive Inspiratory Breathing

Robin Edwards^{1*}, Connor Hibbs^{1*}, Daniel Kramer^{1*}, Tyler Logan^{1*} and George Steer¹

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

Conveying empathy or appreciating patients' feelings is fundamental in providing high quality health care. Dysp-

nea, often referred to as shortness of breath (SOB), is one of the most common symptoms patients with pulmonary disease experience. This study was designed to evaluate Student Physical Therapists' (SPT) empathy for the patient with SOB by simulating restrictive lung disease. Eight SPTs (7 males, mean \pm SD age, 24.6 \pm 1.0 years) were screened for medical history, activity readiness, anthropometrics, balance, and informed consent was obtained. Subjects completed two six-minute walk tests (6MWT). The first (-) 6MWT was performed under normal breathing conditions, while the second (+) 6MWT was performed breathing through an inspiratory muscle trainer (IMT). Associated with each 6MWT, a survey was completed measuring common descriptors of breathlessness, Interpersonal Reactivity Index-Empathic Concern (IRI-EC), modified Clinical COPD Questionnaire (CCQ) and COPD Assessment Test (CAT), using a linear visual analog scale (VAS). Vital signs (VS), Rating of Perceived Exertion (RPE), and Modified Borg Dyspnea Scale (MBDS) were assessed before and after both trials. In response to the (+) 6MWT, subjects displayed an increase in HR, End-tidal carbon dioxide (E_TCO_2), RPE & MBDS compared to the (-) 6MWT. Statistical analysis showed significant differences ($p < 0.05$) in the RPE ($p=0.001$), MBDS ($p=0.014$) and in 19/27 questions (12/13 distinguishable descriptors of breathlessness, 1/1 CAT and 6/6 CCQ) between (+) 6MWT group and (-) 6MWT. Five out of seven IRI-EC questions showed an increase. The (+) 6MWT compared to the (-) 6MWT provoked a significant increase in exertion and subjective responses related to SOB and a percent increase in HR, E_TCO_2 , and empathetic responses. Sensations of breathlessness, as reported by patients with pathological lung diseases, can be replicated with the (+) 6MWT protocol designed in this study.

PG6

PG7 9:00 a.m.

Weblink: <https://us.bbcollab.com/guest/39229038b0ba499487a84edeaec6aeca>

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 melon. 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/39229038b0ba499487a84edeae6aeca>

Comparing Acute:Chronic Workload Ratios in Recreational Runners

Yasmine Darrehmane^{1*}, Kayleigh Kinnelly¹, Sara Shaw¹, Ethan Wolff¹ and Dr. Katherine James¹

^{1*}Department 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 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.

PG9**Determining Optimal Physical Therapy Assessment of Gait and Balance Throughout the ALS Disease Progression**

Emily Farley*, Cecilia Silva-Manrique*, Dylan Woodward*, Dr. Michelle Sanfilippo and Dr. Les Keniston
Department of Physical Therapy, University of Maryland Eastern Shore, Princess Anne, MD 21853

Amyotrophic lateral sclerosis (ALS) is a neurodegenerative disease that progressively destroys an individual's corticomotor neurons, leading to a catastrophic loss of motor functioning. Signs and symptoms at the onset of the disease loosely correlate to disease progression. The time to confirm a medical diagnosis of ALS averages about 14 months from the onset of symptoms and individuals typically only live three to five years after the diagnosis. This diagnostic delay is due to the requirement for clinical evidence to show the progression of signs and symptoms of ALS. The period during diagnostic delay may present an opportunity when patients could modify their lifestyle in order to optimize their quality of life while living with their condition. The study's objective was to determine if there is an optimal physical therapy outcome measure to demonstrate and understand the functional decline throughout ALS disease progression. The study also assessed the correlation between fall risk and ALS disease progression.

Physical Therapy data; 4 meter gait velocity (4 m), Timed Up and Go task (TUG), ALS Functional Rating Scale Revised (ALFSFR-R), and assistive device (AD) use was collected from willing patients with ALS attending the interdisciplinary ALS clinic at Peninsula Regional Medical Center in Salisbury, MD. Additionally, a retrospective medical record review was performed to collect assessment test results and AD use. A correlation has been found between worsening TUG scores and ALS disease progression. Additional findings will be reported.

PG10 8:45 a.m.

Weblink: <https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262>

Effects of Cannabidiol (CBD) on HSV-1 Gene Expression and Replication in Human Dorsal Root Ganglia (DRG) Neurons

Yu-Chih Chen*, Robert W Figliozzi, Qiaojuan Zhang, Dr. Miguel Martin-Caraballo and Dr. Shaochung V. Hsia
University of Maryland Eastern Shore, Department of Pharmaceutical Science, Princess Anne, MD 21853
Addresses: 30515 UMES Blvd. unit C5, Princess Anne, MD 21853

Cannabidiolic acid (CBDA) and its major degradation



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, Δ^9 tetrahydrocannabinol (Δ^9 -THC), CBD does not induce typical psychoactive, behavioral cannabinomimetic 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 abolish 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 invasion 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.bbcollab.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

^{1*}The 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/*PIK3CB*, 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.bbcollab.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 legalization of industrial hemp (*Cannabis sativa* with THC \leq 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 sliver 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.

Weblink: <https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262>

Physical Activity Interventions and Depression Outcome Measures Commonly Used for Individuals with Congestive Heart Failure: A Systematic Review

Raquel Davis^{1*}, Annelise Brumbley¹, Shantell Enonuya¹, and Dr. Michael Rabel¹

^{1*}Department 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/d37b0fc9d699440dad1fd088eca11d47>

Prolactin Treatment Reduces Lipopolysaccharide Induced Inflammation in Pregnant Mice

Chad Carrig^{1*} and Dr. Sandra E. Reznik²

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

²College of Pharmacy and Allied Health Professions, St. John's University, Jamaica, NY 11439

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 (TNF α) and different interleukins, including IL-1 β . 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 TNF α and IL-1 β 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-1 β and 1.5-fold decrease in TNF α with PRL treatment. In a second line of investigation, LPS-challenged

timed pregnant C57BL/6 mice were rescued with intraperitoneal pramipexole (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, C^{1*}, Banas, J¹, and Rothschild, R²

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

²Rothschild's Orthopedic Appliances, Salisbury, MD 21853

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 +/- 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 correlations for variable 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 prostheses.

PG16 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

Isis J. Amaye¹, Yayin Fang², Dr. Miguel Martin¹ and Dr. Patrice Jackson-Ayotunde^{1*}

¹Department of Pharmaceutical Sciences, School of Pharmacy and Health Professions, University of Maryland Eastern Shore, One Backbone Road, Princess Anne, MD 21853

²Department of Biochemistry and Molecular Biology, College of Medicine, Howard University, 520 W Street, NW Washington, DC 20059

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 therapeutic properties of analogs containing the cyclic enaminone system. From the fluorinated benzamide drug library, the lead enaminone 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.



PG17 9:30 a.m.

Weblink: <https://us.bbcollab.com/guest/d37b0fc9d699440dad1fd088eca11d47>

Student Pharmacists' Perceptions of Online Learning: Internal, Instructor, and Course Factors

Mitkumar Patel^{1*}, Alyssa Reese^{1*}, Blair Yesko^{1*},
Gregory K. Shaeffer, MBA, RPh, FASHP¹, Hoai-An Truong, PharmD, MPH, FAPhA, FNAP¹

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

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 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 disagreed 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.

PG18 8:45 a.m.

Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>

The Benefits of Incorporating Powerlifting into Exercise Programs: A Narrative Review

Conor Walsh^{1*}, Rebecca Johnson¹, Akanni Salako¹,
and Dr. Michael Rabel¹

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

Effective training programs require the selection and implementation of appropriate exercises and movement tasks. Understanding the impact of a specific type of exercise can lead to improved program design and progression toward the desired goals and outcomes. The aim of this study was to better understand the advantages of incorporating power lifting maneuvers into exercise programs for healthy populations. A narrative review methodology was employed. CINAHL, PubMed, and MEDLINE electronic databases were searched from 2000 to 2020, for English language articles. The search terms of "squat training and deadlift training" were used. Additional term combinations were added with "benefits and effects". After searching the databases, 291 articles were identified and 19 met the study's inclusion criteria. Twelve articles examined squat lifting and seven articles studied deadlift training. Five of the studies compared the effects of squat or deadlift training to single joint exercises. Electromyographic analysis revealed that the squat exercise demonstrated increased activation of the biceps femoris and rectus femoris. The conventional deadlift produced higher activation of the biceps femoris and medial gastrocnemius as compared to the hex bar deadlift and sumo deadlift, respectively. The sumo deadlift produced greater activation of the vastus lateralis, vastus medialis, and tibialis anterior. These lifting routines also produced favorable effects on body composition, strength, power, physiological characteristics of muscle, and functional performance. Incorporating powerlifting into exercise/training programs can yield a variety of benefits, including enhancements in physical characteristics and athletic abilities.

PG19 9:00 a.m.

Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>

The Design, Synthesis And Pre-Clinical Target Identification Studies Of Novel Fluorinated Enaminones For the Treatment of Epilepsy

Haywood, Rhashanda^{* 1} and Dr. Jackson-Ayotunde, Patrice¹

¹Department of Pharmaceutical Sciences, School of Pharmacy and Health Professions, Princess Anne, MD 21853.



Epilepsy is one of the most common neurological disorders, with 3 million people in the United States and 65 million people worldwide living with this disorder. In America, 1 in 26 individuals will eventually develop epilepsy in their life. 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 IAC-17 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.

Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>

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 Pouloupoulos, 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.

Weblink: <https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19>

The Impact of COVID-19 and Diabetes Risk Associated with Fast Food Consumption Among College Students Attending Two Separate Universities

Kathryn Oakes^{1*}; Keith Bratley^{2*}, Staci Owens³, and Michael Kirtsos⁴, MS, RDN, CSSD, LDN

¹Department of Human Ecology, University of Maryland, Eastern Shore, Princess Anne, MD 21853

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 diabetes. 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.

Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>

The Impact of Shoe Wear on Trunk and Lower Extremity Muscle Activation: A Systematic Review

Kylie Archibald^{1*}, Evann Slaughter¹, Margaret Lenz¹, Miguel Pereyra¹, and Dr. Michael Rabel¹

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

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.

Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>

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

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.



PG24 9:15 a.m.

Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>

Tracing Food Web Dynamics in the Maryland Coastal Bays (MCBs) Using Gut Content, Fatty Acids, Stable Isotopes, and Mercury Analyses

Chelsea Richardson*, Dr. Ali Ishaque and
Dr. Paulinus Chigbu

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

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.

PG25 9:30 a.m.

Weblink: <https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa>

Using Plant Growth Promoting Rhizobacteria to Enhance Defense Related Genes and Biochemical Changes Against Corn Earworm

***Jocelyn Simmons¹**, Tigist Tolosa¹, and
Dr. Simon Zebelo¹

Department of Agriculture, food and Resources Sciences,
University of Maryland Eastern Shore, Princess Anne,
MD 21853

The goal of agriculture is sustainability. Sustainability improves water quality, erosion, water preservation, and crop

yield. With an increase in the population, insect pests, and diseases, there's an increase in demand for crop production. Pesticides and genetically modified crops (GMO) have been the downfall of not only corn production but sustainable agriculture. Insect pests are building resistance to GMOs, making it harder to control. This has prompted researchers to find alternative ways to produce crops. Rhizobacteria is used for this research to manage corn earworms. Plant growth-promoting rhizobacteria (PGPR) can be used to enhance plant growth and promote defense against insect pests. This rhizobacteria increases the nutrient uptake in the plant by colonizing the root. This is how induced systemic resistance (ISR) is initiated. As a result, volatile organic compounds (VOCs), secondary metabolites, are produced directly repelling the insect and indirectly attracting its natural enemy. The objectives of this research are to: 1) To assess the impact of PGPR on corn earworm and corn interactions, and 2) To assess if PGPR enhances defense related genes and biochemical changes. To achieve these objectives, the following methods were employed. Four different strains of PGPR were used for each experiment (Ap 136, AP 209, AP 218, AP 219). For the experiment we used 2 blends, a single strain, and the control. Blend one consists of PGPR strains Ap 209 and Ap 218 whereas Blend 2 consists of strains AP 136 and AP 219. Experiments conducted included biomass, oviposition, and leaf area damage.

PG26

Visual Motion Capture and Analysis

Colin Donovan SPT, CSCS*, Allyson Dover SPT and
Dr. Les Keniston

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

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.



PG27 8:45 a.m.

Weblink: <https://us.bbcollab.com/guest/39229038b0ba499487a84edeaec6aeca>

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



POSTER UNDERGRADUATE

PU1 8:45 a.m.

Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>

African-American Youth Suicides: A Systematic Review of The Scholarly Literature

Tyrese Milbourne and Dr. Brocato

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

The growing body of scholarship on increased suicide rates among young Black males has provided a variety of social and psychological descriptions aimed at mitigating what some have called a public health epidemic. However, there is a lack of systematic review of this research from a race-conscious perspective. This study uses a racialization framework to examine how Black acts of suicide is conceptualized in the literature with respect to youth in the age groups 10 years to 24 years old. This review sheds light on the potential ways a structurally racist system can shape health professionals' views of suicide among Blacks and other ethnic minority groups. Finally, the systematic review contributes to a more sociological analysis of suicide specific to Blacks, and more generally, young adults as social scientists work to address this national and global health crisis.

PU2 9:00 a.m.

Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>

Cover Crops for Horseweed/Marestail (*Conyza canadensis* (L.) Cronq.) Management in Soybean

Edwin Kipruto*, Earle Canter, and Dr. Naveen K Dixit

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 and field conditions. Five cover crops (Rye, Oat, Hairy Vetch (HV), Crimson Clover (CC), and Radish) were planted in monoculture, double, and triple mixture combinations. A total of 25 combinations of cover crops were used to suppress the Marestail population and biomass production at the UMES Research Farm. The maximum biomass was produced by Rye, Rye+CC, and Rye+Oat+CC combinations using mono, double and triple cover crop mixtures respectively. The maxi-

mum plant height was observed in HV followed by Rye > Oat > radish > CC. Height of cover crop influences the height of growing Marestail. The maximum leaf area was observed in HV followed by Rye > Oat > CC > Radish > Fellow. Higher leaf area covers more ground (more shade) surface and prevents the growth of weeds. The maximum suppression of Marestail population was observed in HV (93.7%) followed by triple (Rye+CC+HV (90.6%) and Oat+CC+HV (90.6%) and double (CC+HV (87.5%) cover crop mixtures.

PU3 9:15 a.m.

Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>

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, 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 (Glyphosate/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.



PU4 9:30 a.m.

Weblink: <https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a>

Evaluation of Virulence Genes of *Salmonella* Recovered from Seafood

Adib M. Adnan^{*1,2}, Dr. Salah Elbashir²,
Dr. Fawzy Hashem², and Dr. Salina Parveen²

¹ College of Computer, Mathematical and Natural Sciences, University of Maryland, College park, MD 20742

² Department 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 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 in *Salmonella* among samples. The results suggest that *Salmonella* isolates recovered from seafood can possess virulence genes and thus have the potential to cause salmonellosis. Potential food safety hazards associated with seafood warrant further large-scale studies.

PU5 8:45 a.m.

Weblink: <https://us.bbcollab.com/guest/ed9b85fc9f184184ba89d8493b5607ef>

Exploring Antibiotic Producing Streptomyces from Soil in Maryland

Brittney Whitt¹, Jennifer Ossai¹, and Dr. Behnam Khatabi^{1,2}

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

² Department 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.

PU6 9:00 a.m.

Weblink: <https://us.bbcollab.com/guest/ed9b85fc9f184184ba89d8493b5607ef>

Nanotechnology for the Management of Multiple Plant Pathogens

Macdonard 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 80-100 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.



PUZ 9:15 a.m.

Weblink: <https://us.bbcollab.com/guest/ed9b85fc9f184184ba89d8493b5607ef>

Surveying Viral Pathogens Infecting Soybean On The Delmarva Peninsula

Destiny T. Parker¹, Dr. Erik M. Lindsay², Dr. Papaiah Sardaru², Dr. Sadanand Dhekney² and Dr. Behnam Khatabi^{1,2}

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 and 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, stunting, 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.



ORAL FACULTY

OF1 1:00 p.m.

Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>

Creation of a Bidirectional Referral System Using Prescribewellness to Improve Diabetes and Hypertension

Dr. Yen Dang^{1*} and Dr. Lana Sherr^{1*}

^{1*}Department 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 diabetes and hypertension medications are taken on a routine basis and allows for improvement of health outcomes.

OF2 1:15 p.m.

Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>

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.

OF3 1:30 p.m.

Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>

Molecular Characterization of *Barley Virus G* from Switchgrass and Construction of an Infectious Clone

Dr. Papaiah Sardaru^{*1}, Ruying Chang², Kamil J. Alzayady³, Dr. Sadanand A. Dhekney¹, Dr. Martha Malapi-Wight⁴ and Dr. Behnam Khatabi^{1,2}

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

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

³Physician Assistant Department, School of pharmacy and Health Professions, University of Maryland Eastern Shore, Princess Anne, MD 21853,

⁴ USDA-APHIS-PPQ, Plant Germplasm Quarantine Program, Beltsville, MD, 20705

Barley Virus G (BVG) is a plant virus belonging to the genus *Polerovirus* (family *Luteoviridae*), with a potential threat to grain and biofuel crops from the Gramineae family. Despite a recent report of BVG, infection transmission remains unexplored. In order to characterize and determine the biological and molecular aspects of plant viruses, molecular characterization and construction of infectious clones are key. In the present study, we aim to characterize and determine the biological and molecular aspects of BVG by constructing the viral infectious clones. BVG has 5620 nt single-stranded RNA. We amplified two overlapping PCR fragments (fragment A with 3.9kb and



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>

Optimizing *In Vitro* Culture Techniques for Genetic Improvement of Industrial Hemp (*Cannabis sativa* L.)

Dr. Sadanand Dhekney*, Gabrielle Johnson, Carissa Jackson, Erik Lindsay, Michael Foland, 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 thiaziduron (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>

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



ORAL Graduate

OG1 1:00 p.m.

Weblink: <https://us.bbcollab.com/quest/eb49f06dfdd84fecb8e6d423d24445c9>

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.

OG2 1:15 p.m.

Weblink: <https://us.bbcollab.com/quest/eb49f06dfdd84fecb8e6d423d24445c9>

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 (ALSFRRS-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.

OG3 1:30 p.m.

Weblink: <https://us.bbcollab.com/quest/eb49f06dfdd84fecb8e6d423d24445c9>

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/eb49f06dfdd84fecb8e6d423d24445c9>

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

Jennifer Ossai^{1*}, Dr. Madan Kharel², Dr. Salina Parveen³, and Dr. Behnam Khatibi^{1,3}

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 foodborne 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 Actino-

mycetes 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 parahaemolyticus*. High Resolution-Mass Spectrometry (HR-MS) 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/eb49f06dfdd84fecb8e6d423d24445c9>

Career Technical Education Partnerships: Facilitations and Barriers

Jerry Kelley^{1*}

^{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.



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 of 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 Gama-aminobutyric 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.

OG9 1:30 p.m.

Weblink: <https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e>

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

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.

OG10 1:45 p.m.

Weblink: <https://us.bbcollab.com/quest/e6ae0b58318c4fe79e8ff13377c1490e>

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.

OG11 2:00 p.m.

Weblink: <https://us.bbcollab.com/quest/e6ae0b58318c4fe79e8ff13377c1490e>

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

S.S. Henry^{1*}, 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 as a result of various stressors, such environmental conditions, insect predation, and drying methods. Research has shown that, the choice of drying method and parameters can result in harnessing different chemical and biological activity due to different content of chemical compounds in their composition. Earlier studies have shown that the selection of the drying method has a major influence on the content of volatile essential oils present in herbs. With the development of technology, alternatives for better drying performance have emerged, such as non-isothermal, microwave-vacuum, electrohydrodynamic, radiofrequency, and freeze drying have been identified as potential candidates for industrial drying of cannabis. The experiment was conducted using hemp grown at the UMES Demonstration Farm using three varieties of hemp (Mountain Mango, Trump and Cherrywine) using five drying methods (1) freshly cut hemp (control), (2) freeze dry, (3) oven dry, (4) hang dry, and (5) darkroom dry with three replications per treatment. After drying, samples were weighed, submerged in methanol, vortexed, pipetted into vials and placed in a GC-FID machine. Results indicated that freeze dry hemp had higher cannabidiol (CBD) and lower tetrahydrocannabinol (THC) levels. It was concluded that oven dry was the fastest drying method, however, freeze dry was more efficient and more favorable based on the public requirements.

OG12 2:15 p.m.

Weblink: <https://us.bbcollab.com/quest/e6ae0b58318c4fe79e8ff13377c1490e>

Evaluating Physiological and Immune Responses of Tanner Crab (*Chionoecetes bairdi*) to *Hematodinium sp.* Infection

Shanelle Haughton^{1*}, Dr. Pamela Jensen² and Dr. Joseph Pitula¹

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

²NOAA-AFSC, Seattle, WA 98115

Hematodinium sp. is a genus of parasitic dinoflagellates that can cause Bitter Crab Disease/Bitter Crab Syndrome (BCD/BCS), in the commercially important crustaceans, southern Tanner crab (*Chionoecetes bairdi*) and snow crab (*C. opilio*). Tanner crab and snow crab are sold collectively as snow crabs, generating over \$55 million in 2016. There are high rates of *Hematodinium sp.* infection in Tanner crabs native to



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 Solvita® 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^{1*} and Dr. Leslie Santos^{1*},
Jessie Cavolt^{2*} and Dr. Heather Holmes^{2*}

^{1*}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 Ahuchaogu^{1*}, Jennifer Ossai²,
Dr. Madan Kharel³, Dr. Sadanand A. Dhekney¹ and
Dr. Behnam Khatabi^{1,2}

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, food-borne 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 potent 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 Pouloupoulos, 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^{*1}, Dr. Salina Parveen¹, Dr. Jurgen Schwarz¹, Lindsey Hamill², Dr. Caleb Nindo¹, Dr. Parker Hall² and Dr. Bob Vimini²

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

²Perdue Farms, Inc., Salisbury, MD 21802, USA.

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 PAA 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.

OG18 2:15 p.m.

Weblink: <https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0>

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

Marie Parfait and Dr. Henry Wagner



OG19 1:00 p.m.

Weblink: <https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061>

The Efficacy of Educational Sustainable Development Lessons and Instruction in the United States and Japan

*** Kelly Bryant**

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

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.

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^{1*}, Bokary Sylla¹, Amit Sharma¹, Breann Hrechka-Green¹, Dr. Andrew G. Ristvey² and Dr. Victoria V. Volkis^{1†}

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

²University 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.

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-



ronment. 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 particularly black males.

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^{1*}, Dr. Andrew Ristvey² and Dr. Victoria Volkis^{1†}

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

²University of Maryland Extension, Wye Research and Education Center, Queenstown, MD 21658-0169

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

Preeti Sharma^{1*} and Dr. Victoria Volkis^{1†}

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

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-



ymers 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 CO₂ 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%.



ORAL UNDERGRADUATE

OU1 1:00 p.m.

Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>

Application of Extracts from Super-Fruits and Medical Herbs as Organic Pesticides

Amal Suleiman Adamu^{1*}, Yeihawa Kulanda, Mark Joseph, Carson Cohen, Dr. Simon Zebelo* and Dr. Victoria V. Volkis*

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

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 teniflorum*), 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.

Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>

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 mitschurinii 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 deter-

mine 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.

OU3 1:30 p.m.

Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>

Development of an All-Natural, Organic Power Drink from Aronia Berries

Bokary Sylla*, Ayanna E. Lynn¹, Mohammad Abdelmotalab¹, Jordan R. Brooks^{1*}, Itohan R. Eromosele^{1**}, Dr. Andrew G. Ristvey² and Dr. Victoria V. Volkis^{1†}

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

²University of Maryland Extension, Wye Research & Education Center, Queenstown, MD 21658-0169

The *Aronia mitchurinii* berry, also known as the chokeberry, is a potential candidate for the next generation of superfruit, as it contains more than 15 times antioxidant content of the Acai berry and over 40 times that of tomatoes. Fiber powders from the berries contain significant amounts of anthocyanins, indicated by a dark red/purple color. The berry has also been found to have antidiabetic, and anti-cancer effects, and protects against various other health issues. Most mainstream power drinks are high in sugars, sodium, and do not claim any antioxidants, minerals or other nutrients.

This research revolves around the development of a power drink that is all-natural, organic, using natural sweeteners, with no artificial colorants. The development of a formulation, and technology of production, along with a comparison with other similar products on the market will be presented, along with chemical analysis of antioxidants, minerals, and sugars and sorbitol.

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.

OU4 1:45 p.m.

Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>

Experimentation of Machine Learning Usage for Mental Health Studies

Nicholas Waugh*¹ and Dr. Mark William¹

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

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.

OU5 2:00 p.m.

Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>

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.

OU6 2:15 p.m.

Weblink: <https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b>

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

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 had 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.

OU7 1:00 p.m.

Weblink: <https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22>

Functional Characterization of Insulin Receptor and NHE3 in Zebrafish Kidney

Iyinyeoluwa Okulate^{1*} and Dr. Tracy Bell¹

^{1*}Department of Natural Science, 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



(10 μ L) with vehicle (saline) or insulin (0.01 U, 0.1 U, and 1 U/kg). On average fish weighed 0.29 \pm 0.04g. Following the i.p. injection and a thirty-minute recovery period, fish were euthanized by cold water immersion and their kidneys dissected and prepared for analysis. The kidneys from 5 fish per treatment group were pooled together for RNA extraction. Gene expression analysis using RT-PCR revealed that insulin injection stimulated mRNA expression of *nhe3b* and *nhe3a*. This 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 CO₂ 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 CO₂ sorption will be presented.

OU9 1:30 p.m.

Weblink: <https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22>

Insulin Receptor Signaling and Zinc in the Zebrafish Kidney

Brianna Gaskins^{1*}, Reneece Skeen¹ and Dr. Tracy Bell¹
^{1*}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 (Zn²⁺) in the synthesis and secretion of insulin and as an insulin-mimetic. Also, Zn²⁺ has been shown to stimulate intestinal NHE3 via second messenger Phospholipase C

(PLC). It raises the possibility that Zn²⁺ 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 (ZnCl₂) 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 ZnCl₂ 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 ZnCl₂ 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 Zn²⁺ released by ZnCl₂ did not decrease in treatment solutions following fish exposure when compared to fresh treatment solutions. Taken together, these findings show that exposing zebrafish to ZnCl₂ 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/b8f1f906dfcf4ad09ece4795128c5c22>

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/b8f1f906dfcf4ad09ece4795128c5c22>

Observing Spread of Disease using Graph Theory and Link Prediction

Darryl Parsons¹ and Dr. Tiara T. Cornelius²

¹Department of Computer Science & Engineering Technology, University of Maryland Eastern Shore, Princess Anne, MD 21853

²Department 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/b8f1f906dfcf4ad09ece4795128c5c22>

Probing Specialty Crops and Medicinal Herbs Extracts for Potential Antifouling Agents

Teemer Barry¹, Carson Cohen¹, Baruch S. Volkis¹, Dr. Paulinus Chigbu¹ and Dr. Victoria V. Volkis¹

¹Department 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/c4bc377c733e446fbdf43a0d655dc061>

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

Semaj Fielding¹ and Dr. Steve Lonhart²

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

²Monterey 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.



OU14 2:15 p.m.

Weblink: <https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab>

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

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.

OU15 1:15 p.m.

Weblink: <https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22>

Radiative Cooling Using Cellulite Materials

Yeganeh Mansourian and Dr. Kausik S Das*
Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853.

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 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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Dean, School of Graduate Studies and Research

(All persons are from UMES unless otherwise stipulated)

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University of Maryland Eastern Shore 2021 Regional Research Symposium
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Chair of the Judges' Committee:

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JUDGING OCCURS FROM Monday to Thursday **USES PRERECORDED VIDEOS LOCATED AT:**

JUDGE	SESSION	TIME Q&A	LOCATION
1 Williams, Mark	POSTER Faculty 1-5	8:45 a.m.-9:45 a.m.	Google Docs ????
2 Craven, Cynthia	POSTER Faculty 1-5	8:45 a.m.-9:45 a.m.	
3 Hearne, Jennifer	POSTER Faculty 1-5	8:45 a.m.-9:45 a.m.	
4 Crawford, Maurice	POSTER Faculty 6-10	8:45 a.m.-9:45 a.m.	
5 Bell, Tracy	POSTER Faculty 6-10	8:45 a.m.-9:45 a.m.	
6 Sauder, Deborah	POSTER Faculty 6-10	8:45 a.m.-9:45 a.m.	
7 Potter, Amelia	POSTER Graduate 1-5	8:45 a.m.-9:45 a.m.	
8 Kharel, Madan	POSTER Graduate 1-5	8:45 a.m.-9:45 a.m.	
9 Shaeffer, Greg	POSTER Graduate 1-5	8:45 a.m.-9:45 a.m.	
10 Tejada, Fred	POSTER Graduate 6-10	8:45 a.m.-9:45 a.m.	
11 Ayotunde, Patrice	POSTER Graduate 6-10	8:45 a.m.-9:45 a.m.	
12 Grant, Sharone	POSTER Graduate 6-10	8:45 a.m.-9:45 a.m.	
13 Hasan, Khaled	POSTER Graduate 11-15	8:45 a.m.-9:45 a.m.	
14 Weaver, William	POSTER Graduate 11-15	8:45 a.m.-9:45 a.m.	
15 Hsia, Victor	POSTER Graduate 11-15	8:45 a.m.-9:45 a.m.	
16 Min, Byungrok	POSTER Graduate 16-20	8:45 a.m.-9:45 a.m.	
17 Loveland, Thomas	POSTER Graduate 16-20	8:45 a.m.-9:45 a.m.	
18 Wele, Elangwe	POSTER Graduate 16-20	8:45 a.m.-9:45 a.m.	
19 Kharel, Madan	POSTER Graduate 21-25	8:45 a.m.-9:45 a.m.	
20 Tejada, Fred	POSTER Graduate 21-25	8:45 a.m.-9:45 a.m.	
21 Ayotunde, Patrice	POSTER Graduate 21-25	8:45 a.m.-9:45 a.m.	
22 Wang, Peter	POSTER Graduate 26-30	8:45 a.m.-9:45 a.m.	
23 Potter, Amelia	POSTER Graduate 26-30	8:45 a.m.-9:45 a.m.	
24 Purnell, Miriam	POSTER Graduate 26-30	8:45 a.m.-9:45 a.m.	
25 Amaye, Isis	POSTER Undergraduate 1-4	8:45 a.m.-9:45 a.m.	
26 Bediako, Bernice	POSTER Undergraduate 1-4	8:45 a.m.-9:45 a.m.	
27 Haywood, Rhashanda	POSTER Undergraduate 1-4	8:45 a.m.-9:45 a.m.	
28 Amaye, Isis	POSTER Undergraduate 5-7	8:45 a.m.-9:45 a.m.	
29 Johnson, Zoe	POSTER Undergraduate 5-7	8:45 a.m.-9:45 a.m.	
30 Bediako, Bernice	POSTER Undergraduate 5-7	8:45 a.m.-9:45 a.m.	



University of Maryland Eastern Shore 2021 Regional Research Symposium
Carnegie Classification: High Research Activity Doctoral University

ORAL JUDGES' SCHEDULE

Chair of the Judges' Committee:

Dr. Patrice Jackson-Ayotunde (pljackson@umes.edu)

	JUDGE	SESSION	TIME	LOCATION
31*	Williams, Mark	ORAL Faculty 1-5	1:00 p.m. - 2:30 p.m.	Room 11
32*	Dabipi, I. K.	ORAL Faculty 1-5	1:00 p.m. - 2:30 p.m.	https://us.bbcollab.com/guest/bda08f1f9f58451cbbacbdbfb4e117ab
33*	Hearne, Jennifer	ORAL Faculty 1-5	1:00 p.m. - 2:30 p.m.	
34	Bell, Tracy	ORAL Graduate 1-4, 6, 24	1:00 p.m. - 2:30 p.m.	Room 12
35	Wele, Elangwe	ORAL Graduate 1-4, 6, 24	1:00 p.m. - 2:30 p.m.	https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9
36	Dixit, Naveen	ORAL Graduate 1-4, 6, 24	1:00 p.m. - 2:30 p.m.	
37	Monish, Das	ORAL Graduate 7-12	1:00 p.m. - 2:30 p.m.	Room 13
38	Zheng, Lisa	ORAL Graduate 7-12	1:00 p.m. - 2:30 p.m.	https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e
39	Tejada, Fred	ORAL Graduate 7-12	1:00 p.m. - 2:30 p.m.	
40	Parveen, Salina	ORAL Graduate 13-18	1:00 p.m. - 2:30 p.m.	Room 14
41	Sauder, Deborah	ORAL Graduate 13-18	1:00 p.m. - 2:30 p.m.	https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0
42	Truong, Hoai-an	ORAL Graduate 13-18	1:00 p.m. - 2:30 p.m.	
43**	Ishaque, Ali	ORAL Graduate 19-23	1:00 p.m. - 2:15 p.m.	Room 15
44**	Ayotunde, Patrice	ORAL Graduate 19-23	1:00 p.m. - 2:15 p.m.	https://us.bbcollab.com/guest/c4bc377c733e446bfd43a0d655dc061
45**	Crawford, Maurice	ORAL Graduate 19-23	1:00 p.m. - 2:15 p.m.	
46	Brown, Willie	ORAL Undergraduate 1-6	1:00 p.m. - 2:30 p.m.	Room 16
47	Ejiogu, Kingsley	ORAL Undergraduate 1-6	1:00 p.m. - 2:30 p.m.	https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b
48	Loveland, Thomas	ORAL Undergraduate 1-6	1:00 p.m. - 2:30 p.m.	
49	Bediako, Bernice	ORAL Undergraduate 7,9-12,15	1:00 p.m. - 2:30 p.m.	Room 17
50	Haywood, Rhashanda	ORAL Undergraduate 7,9-12,15	1:00 p.m. - 2:30 p.m.	https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22
51	Potter, Amelia	ORAL Undergraduate 7,9-12,15	1:00 p.m. - 2:30 p.m.	
43**	Ishaque, Ali	ORAL Undergraduate 13	2:15 p.m.	Room 15
44**	Ayotunde, Patrice	ORAL Undergraduate 13	2:15 p.m.	https://us.bbcollab.com/guest/c4bc377c733e446bfd43a0d655dc061
45**	Crawford, Maurice	ORAL Undergraduate 13	2:15 p.m.	
31*	Williams, Mark	ORAL Undergraduate 14	2:15 p.m.	Room 11
32*	Dabipi, I. K.	ORAL Undergraduate 14	2:15 p.m.	https://us.bbcollab.com/guest/bda08f1f9f58451cbbacbdbfb4e117ab
33*	Hearne, Jennifer	ORAL Undergraduate 14	2:15 p.m.	
52				



3MT JUDGES' SCHEDULE

	JUDGE	SESSION	TIME	LOCATION
53	Mrs. Crystal Sankar, Executive Administrative Assistant to the General Counsel	3MT	9:45 a.m.– 11:00 a.m.	WEBLINK: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5
54	Mr. Wayne Eguono Omagamre, Ph.D. student, Toxicology	3MT	9:45 a.m.– 11:00 a.m.	WEBLINK: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5
55	Mrs. Donna Marie Price, Executive Administrative Professional I, Office of Academic Affairs	3MT	9:45 a.m.– 11:00 a.m.	WEBLINK: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5
56	Mr. Josh Shockley, Grants Contracts Manager Office of Research	3MT	9:45 a.m.– 11:00 a.m.	WEBLINK: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5

3MT MODERATORS' SCHEDULE

	MODERATOR	SESSION	TIME	LOCATION
16	Mr. Chinedu Ahuchaogu, Doctoral Student, Toxicology	3MT	9:45 a.m.– 11:00 a.m.	(WEBLINK: https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5)



POSTER AND ORAL MODERATORS' SCHEDULEChair of the Moderators' Committee: Mr. Zoe Johnson (zjohnson@umes.edu)

Moderator	SESSION	TIME	LOCATION
1 Mr. Zoe Johnson, Toxicology, UMES	POSTER Session PF10 and LSAMP	8:45 a.m.-9:45 a.m.	Room 0 https://us.bbcollab.com/guest/9e48f3c274594f8a83713fa2a9bce0f5
2 Dr. Alessandra Zimmerman. Executive Director- Proposal Analytics Inc.	POSTER Session PF9, PF2 to PF4	8:45 a.m.-9:45 a.m.	Room 1 https://us.bbcollab.com/guest/f9c79c1e23d848b6b24cd9ea10f52417
3 Ms. Sherene Black, Toxicology, UMES	POSTER Session PF5 to PF8	8:45 a.m.-9:45 a.m.	Room 2 https://us.bbcollab.com/guest/bc5c0e8e95f5470c90b232a092edfb34
4 Ms. Laura Almodovar-Acevedo, MEES, UMES	POSTER Session PG1 to PG4	8:45 a.m.-9:45 a.m.	Room 3 https://us.bbcollab.com/guest/8d9b0d8a339a4dd08469a78a5cb27110
5 Mr. Reuel Danquah, Toxicology Program. UMES	POSTER Session PG27, PG7 to PG8	8:45 a.m.-9:45 a.m.	Room 4 https://us.bbcollab.com/guest/39229038b0ba499487a84edeaec6aeca
6 Ms. Cristina Santana, Veterinary Diagnostic and Production Animal Medicine, Iowa State University	POSTER Session PG10 to PG13	8:45 a.m.-9:45 a.m.	Room 5 https://us.bbcollab.com/guest/aa7ea84509794e10b575c004e08f0262
7 Mr. Oluwagbemiga Nelson Ajayi, Department of Information Systems, UMBC	POSTER Session PG14, PG16 to PG17	8:45 a.m.-9:45 a.m.	Room 6 https://us.bbcollab.com/guest/d37b0fc9d699440dad1fd088eca11d47
8 Ms. Kayle Krieg, MEES, UMES	POSTER Session PG18 to PG20	8:45 a.m.-9:45 a.m.	Room 7 https://us.bbcollab.com/guest/b2f9ca7eead44cafa05c2aa084c0cf19
9 Ms. Madeline Farmer, MEES, UMES	POSTER Session PG21 to PG25	8:45 a.m.-9:45 a.m.	Room 8 https://us.bbcollab.com/guest/3e32b5a3c8cc4de79480be90368d4caa
10 Ms. Cy'Anna Scott, DNS, UMES	POSTER Session PU1 to PU4	8:45 a.m.-9:45 a.m.	Room 9 https://us.bbcollab.com/guest/a9817a15a2804142a6f2bd28a202725a
11 Ms. Ijeoma Ngoka, Toxicology, UMES	POSTER Session PU5 to PU7	8:45 a.m.-9:45 a.m.	Room 10 https://us.bbcollab.com/guest/ed9b85fc9f184184ba89d8493b5607ef
12 Ms. Sherene Black, Toxicology, UMES	ORAL Session OF1 to OF5, OU14	1:00 pm to 2:30 pm	Room 11 https://us.bbcollab.com/guest/bda08f1f9f58451cbbacdbdfb4e117ab
13 Ms. Cristina Santana, Veterinary Diagnostic and Production Animal Medicine, Iowa State University	ORAL Session OG1 to OG4, OG24, OG6	1:00 pm to 2:30 pm	Room 12 https://us.bbcollab.com/guest/eb49f06dfdd84fecb8e6d423d24445c9
14 Ms. Ijeoma Ngoka, Toxicology, UMES	ORAL Session OG6 to OG12	1:00 pm to 2:30 pm	Room 13 https://us.bbcollab.com/guest/e6ae0b58318c4fe79e8ff13377c1490e
15 Ms. Katrina Kelly, MEES, UMES	ORAL Session OG13 to OG18	1:00 pm to 2:30 pm	Room 14 https://us.bbcollab.com/guest/837471e538be452893613a92a4b388f0
16 Ms. Kayle Krieg, MEES, UMES	ORAL Session OG19 -OG23, OU13	1:00 pm to 2:30 pm	Room 15 https://us.bbcollab.com/guest/c4bc377c733e446fbdf43a0d655dc061
17 Mr. Reuel Danquah, Toxicology Program. UMES	ORAL Session OU1—OU6	1:00 pm to 2:30 pm	Room 16 https://us.bbcollab.com/guest/5b632028161849319756c70c9281791b
18 Mr. Oluwagbemiga Nelson Ajayi, Department of Information Systems, UMBC	ORAL Session OU7,OU15,,OU9- OU12	1:00 pm to 2:30 pm	Room 17 https://us.bbcollab.com/guest/b8f1f906dfcf4ad09ece4795128c5c22



Applied Computer Science, M.S.



Dr. Gurdeep Hura

**GRADUATE PROGRAM
DIRECTORS**

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

Dr. Mark Simmons

Career & Technology Education, M.Ed.



Dr. Thomas Loveland

Food & Agricultural Sciences, M.S.



Dr. Jurgen Schwarz

Physical Therapy, D.P.T.



Dr. Michael Rabel

Chemistry, M.S.



Dr. Victoria Volkis

Food Science and Technology, Ph.D.



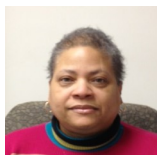
Dr. Caleb Nindo

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



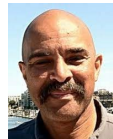
Dr. Paulinus Chigbu

Counselor Education, M.Ed.



Dr. Cheryl Bowers

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



Dr. Maurice Crawford

Rehabilitation Counseling, M.S.



Dr. Leslie Santos

Criminology and Criminal Justice, M.S.



Dr. Nelsata Waters Jones

Master of Arts In Teaching, M.A.T



Dr. Charles Baldwin

Special Education, M.Ed.



Dr. Patricia Goslee

Education Leadership, Ed.D.



Dr. Derry Stufft

Organizational Leadership, Ph.D.



Dr. Prince Attoh

Toxicology, Ph.D. and M.S.



Dr. Ali Ishaque



DIVISION of ACADEMIC AFFAIRS
School of Graduate Studies

GRADUATE COUNCIL

2019-2022

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

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. Kinglsey 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

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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. [Kiah Hall](#)
2. [Richard Henson Center](#)
3. [Ella Fitzgerald Performing Arts Center](#)
4. [Student Development Center](#)
5. [Nuttie Hall](#)
6. [Court Plaza](#)
7. [Wicomico Hall](#)
8. [Tawes Gym](#)
9. [William P. Hytche Center](#)
10. [Student Services Center](#)
11. [Bird Hall \(Admissions and Financial Aid\)](#)
12. [John T. Williams Admission Building](#)
13. [Waters Hall](#)
14. [Murphy Hall](#)
15. [George Washington Carver Science Building](#)
16. [Somerset Hall](#)
16. [Wilson Hall](#)
17. [Frederick Douglass Library](#)
18. [Trigg Hall](#)
19. [Thomas/Briggs Arts and Technology Center](#)
20. [Early Childhood Research Center](#)
21. [Student Apartments](#)
22. [Plaza Hall](#)
23. [Residence Life/Student Clusters](#)
24. [Agricultural and Research Facilities](#)
25. [Tanner Airway Science Center](#)

49. [Engineering and Aviation Sciences Complex](#)
26. [Sports Facilities](#)
27. [Linda Brown Building](#)
28. [University Terrace](#)
29. [Food Science and Technology Building](#)
30. [Physical Plant](#)
31. [Hazel Hall](#)
32. [Public Safety](#)
33. [Swine Research Facilities Center](#)
34. [Crop Research and Aquaculture Building](#)
35. [Agriculture Research Building](#)
36. [Banneker Hall](#)
37. [Spaulding Hall](#)
38. [Temporary Classroom Building 1](#)
39. [Purchasing](#)
40. [Alumni House](#)
41. [Poultry Research Center](#)
42. [Charles Drew Student Health Center](#)
43. [Commercial Greenhouse](#)
44. [Hawks Landing](#)
45. [President's House](#)
46. [Harford Hall](#)
47. [Access & Success Building](#)
48. [WESM Radio Station](#)





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and 11th Regional Research
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