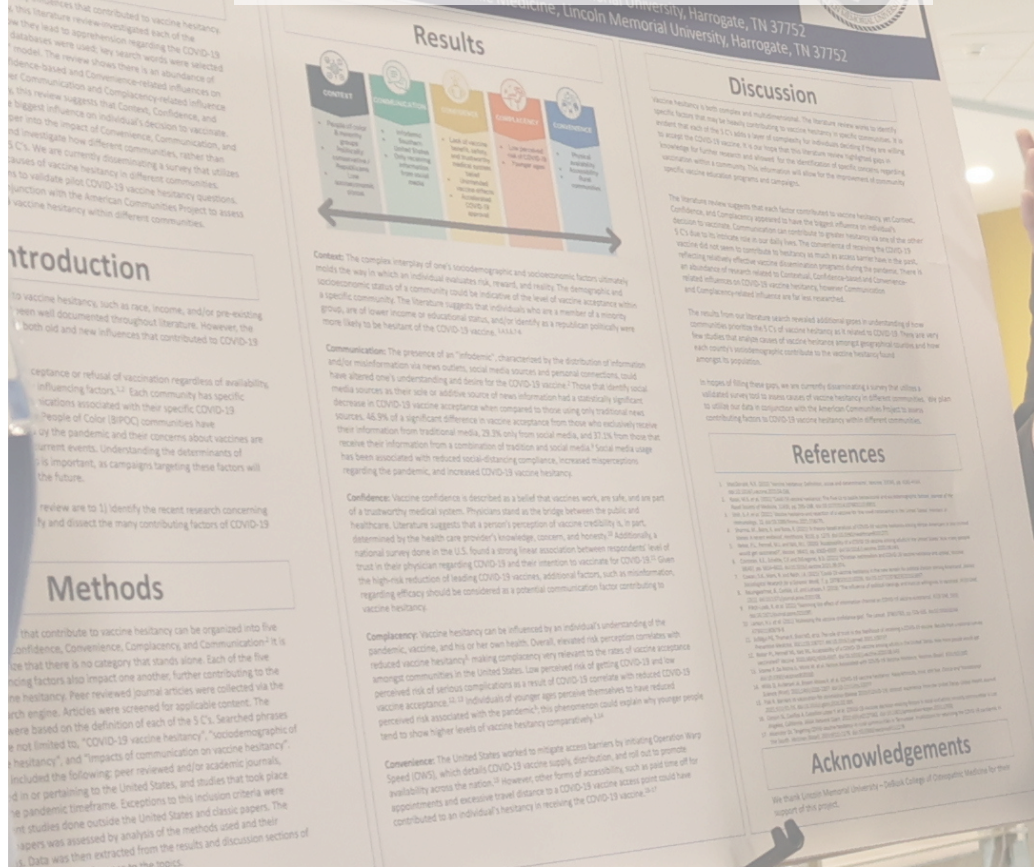


ORGSP Quarterly

An ORGSP Newsletter from Lincoln Memorial University

Results



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Spotlights

SPRING 2024

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This quarter's issue focuses on spring research. Learn about the excellent work of LMU's faculty, staff, and students.

Spotlights

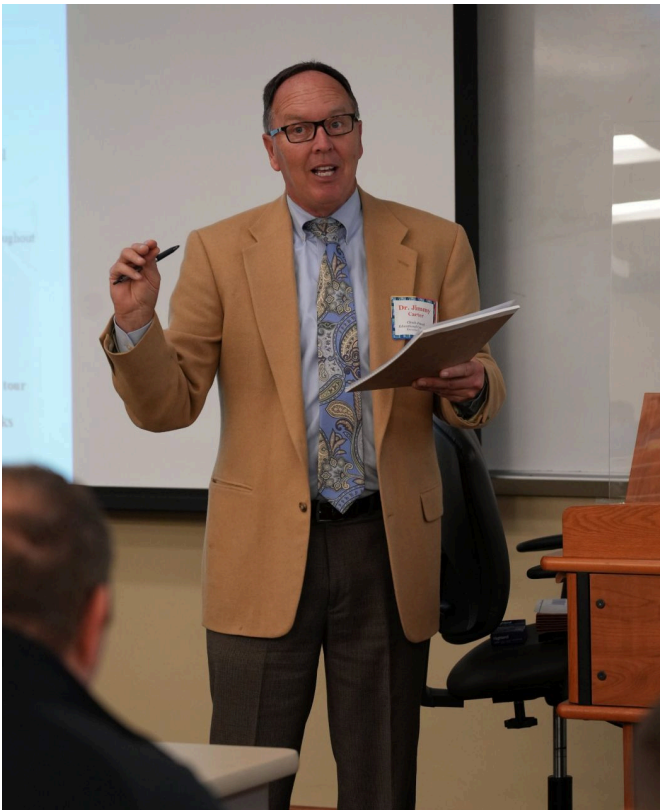
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Research Spotlight

Will Copepods Save the Planet?

The Research Spotlight Series highlights the fascinating work that is taking place on LMU's campus between faculty and students.

Our first spotlight looks at the work being done in LMU's Imaging and Analysis Center, located in the Math and Science Building in Harrogate, Tennessee.

Hannah G. Diehr¹, MS; Stan C. Kunigelis², Ph.D.
1.LMU Graduate Thesis Researcher; 2. Director of Imaging and Analysis Center.

Too little atmospheric CO₂ and our planet would be frozen (-0.4oC). Too much CO₂ and our planet will cook, like Venus. About 4 billion years ago, the planet Venus was earth-like, hospitable, with abundant surface waters (Sagan, 1967). Venus is a good example of how high levels of atmospheric CO₂

can cause a major greenhouse effect, warming the planet's surface enough to evaporate its oceans en route to creating an inhospitable surface temperature of 325+oC (600+oF).

Historically, planet earth had an ideal amount of atmospheric CO₂, 280-350 ppm, rendering the earth's surface temperature a very moderate 14oC. Today's world has exceeded 415 ppm atmospheric CO₂, enhancing the greenhouse effect. The resulting global warming symptoms include:

Weather extremes include rising global temperature which means warmer oceans, melting glaciers, reduced snowpack, thawing permafrost, shrinking (Arctic) sea ice, rising sea levels with increasing acidity, and coastal flooding.

Traditionally, atmospheric CO₂ levels are regulated by northern hemisphere tree photosynthesis during the summer months. In winter CO₂ dissolution in southern hemisphere oceans leads to the incorporation of CaCO₃ into frustules, shells, and corals. The White Cliffs of Dover England provide an ideal visual example of oceanic accumulation of fixed CO₂. These have become terrestrial through tectonic plate action. Today's world puts an amount of CO₂ equivalent to the White Cliffs into the atmosphere annually.

Just as early 1900s coal miners carried singing canaries underground to detect carbon monoxide, copepods have been used in biomonitoring programs to detect environmental changes, earning them the

nickname of "singing canaries" (Marmorek and Korman, 1993).

Copepods are aquatic invertebrates found in fresh and marine water; they are the most numerous multicellular organisms on planet Earth. The length of a copepod is smaller than the diameter of a human hair, but they hold many secrets yet to be uncovered, with a brain, heart, reproductive tract, and open circulatory system common to all copepods. Each individual species has specific nuances separating them from the rest. Plankton are subdivided into phytoplankton and zooplankton, copepods fall under the latter. Phytoplankton are responsible for 51% of the earth's photosynthesis (Behrenfeld et al., 2001), regulating global CO₂ through its incorporation into carbohydrates. Phytoplankton produces a compound called DMSP which is converted to DMS upon their demise. DMS is volatilized to seed low lying clouds which reduces solar radiation, thereby regulating surface temperature (Brooks and Thornton, 2018). As such, plankton are involved in global temperature regulation!

If we are to use copepods as aquatic "singing canaries" then the question becomes what song will they sing? What parameter(s) will we monitor to warn us of global warming before it is too late?

The answer lies in a newer discipline called genomics. While "genomics" refers to the DNA composition of an organism, "omics" has a much broader definition. Omics looks at metabolic pathways, their regulation, precursors, and end products (NAS, 2012).

Towards this end, we can look at proteomics, lipidomics, or transcriptomics for potential

copepod songs. The song's tune must be noticeably changed by global warming. So, we must listen carefully to the song, to warn us of impending climatic change before it becomes cataclysmic.

The Imaging and Analysis Center (IAC) specializes in working with copepods, utilizing Scanning Electron Microscopy (SEM) for morphological analysis. Copepods are field collected in the Apalachicola Estuary along the northern shore of the Gulf of Mexico using the Florida State University Coastal and Marine Laboratory (St. Teresa, Florida) as our base station. There are seven residential species that live in the estuary year-round, while many other species migrate based on water temperature. Copepods are basal primary consumers, they are a nutrient and energy-rich food source for many, if not all, aquatic animals (Ahyong, 2024). Global warming, as well as ecological changes, have proved to affect migration patterns and the demographics of copepods. Just as it takes one card for a house of cards to fall, the same concept applies to the food chain; copepods are at the base, and if they start to migrate to other places, it can adversely affect organisms at higher trophic levels. It is important to study these microscopic crustaceans now more than ever to establish a baseline and prevent detrimental ecological effects. Dr. William Morton Wheeler, who is one of the first copepodologists said it best, "no group of animals has been more neglected by zoologists" (Wheeler, 1900). This is still true today!

There are ten orders of copepods; Calanoida is the most common, with the most common genus being *Acartia* (World of Copepods, 2004).

Although *Acartia* prefer coastal and estuarine environments they are very adaptable to temperature and salinity changes, allowing them to live almost anywhere. They have one photosensitive naupliar eye and are classified as filter feeders, meaning they do not scavenge for food; they simply reach out and capture whatever food particles float by them in the water column. *Labidocera* is another common genus found in most waters. This genus has two scanning lenses allowing them to detect motion. This, along with specialized mouthparts, classifies them as hunters rather than filter feeders. *Labidocera* also has specialized legs (i.e., pleopods) to allow for faster swimming and lunging at prey.

Due to rising temperatures attributed to global warming, the last two field collections have given us some new species not previously seen. These species are very similar morphologically, making it extremely difficult to distinguish between them using SEM and nearly impossible using light microscopy. We have no choice but to turn to genomics for species confirmation or new species identification. The application of omics research in the field of copepodology will allow a more comprehensive understanding of copepod biology. The door will be opened for many future research projects with the ultimate goal of finding a link between copepod physiology and human medicine.

Before you can run, you must learn to walk, or in this case swim, and that is what we're working on right now. To obtain the DNA from the nucleus, the cells of the copepod must first be lysed. Copepods have a chitinous exoskeleton, making them difficult to completely lyse. This has proved to be one daunting hurdle. Another hurdle is the fixation

chemical we currently use in the IAC, glutaraldehyde. Glutaraldehyde is the gold-standard fixative for SEM analysis. The SEM is like a microwave; it shoots a beam of electrons directly at the specimen. To prevent the specimen from being burnt to a crisp, we must first stabilize the structure; this is done with glutaraldehyde. Glutaraldehyde prevents the decomposition of the copepod by strongly cross-linking proteins, which protects the structural integrity of the copepod and allows morphological study (Nalezinková, 2024). Using glutaraldehyde does come at a price; once the proteins are cross-linked, it becomes very difficult to break those links, which also results in incomplete lysis.

Due to its ready availability, a pilot study was conducted using *Acartia*. Nine different lysing buffers were tested at seven different time points, with one set of samples running at room temperature and another heated at 65°C. Using light microscopy, the samples were evaluated for signs of lysis, and a staining procedure was used to check for the presence of cellular dissociation. From that experiment, two buffers were identified to be most effective; heating the samples was found to be more effective as well. The next step will be to repeat the experiment with *Labidocera aestiva* collected from the Apalachicola Estuary. One set of copepods will be fixed in glutaraldehyde while the second set will remain unfixed. The comparison of DNA percentage yield between fixed and unfixed

specimens will allow us to determine if glutaraldehyde is contraindicated to genomics studies. Genomics as well as other branches of omics are the future of research. This basic experiment will allow the IAC to begin applying omics not only to copepods but also to other areas of emerging research.

Literature Cited:

- Ahyong**, S, Boyko, CB, Bailly, N. (2024). World Register of Marine Species. Available from <https://www.marinespecies.org> at VLIZ. Accessed 2024-04-23. doi:10.14284/170
- Behrenfeld**, MJ, Randerson, JT, McClain, CR, Feldman, GC, Los, SO, Tucker, CJ, ... Pollack, NH. (2001). Biospheric primary production during an ENSO transition. *Science*, 291(5513), 2594-2597. doi:10.1126/science.1055071
- Brooks**, SD, Thornton, DCO. (2018). Marine Aerosols and Clouds. *Annual Review of Marine Science*, 10, 289-313.
- National** Academies of Sciences, Engineering, and Medicine. (2012). *Evolution of Translational Omics: Lessons Learned and the Path Forward*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13297>
- Marmorek**, D. R., & Korman, J. (1993). The use of zooplankton in a biomonitoring program to detect lake acidification and recovery. *Water Air Soil Pollution*, 69, 223-241. <https://doi.org/10.1007/BF00478160>
- Nalezinková**, M., Loskot, J., & Myslivcová Fučíková, A. (2024). The use of scanning electron microscopy and fixation methods to evaluate the interaction of blood with the surfaces of medical devices. *Scientific Reports*, 14, 4622. <https://doi.org/10.1038/s41598-024-55136-z>
- Sagan**, C. (1961). The Planet Venus. *Science*, 133(3456), 849-858. <http://www.jstor.org/stable/1706530>
- Wheeler**, W. M., & United States Fish Commission. (1900). *The free-swimming copepods of the Woods Hole region*. Government Printing Office.
- The** World of Copepods - Copepoda. (2004, December 21). Retrieved from www.marinespecies.org/copepoda/aphia.php?p=taxdetails&id=1080#sources

Interested in this research? Contact the researchers at hannah.diehr@Imunet.edu and stan.kunigelis@Imunet.edu.

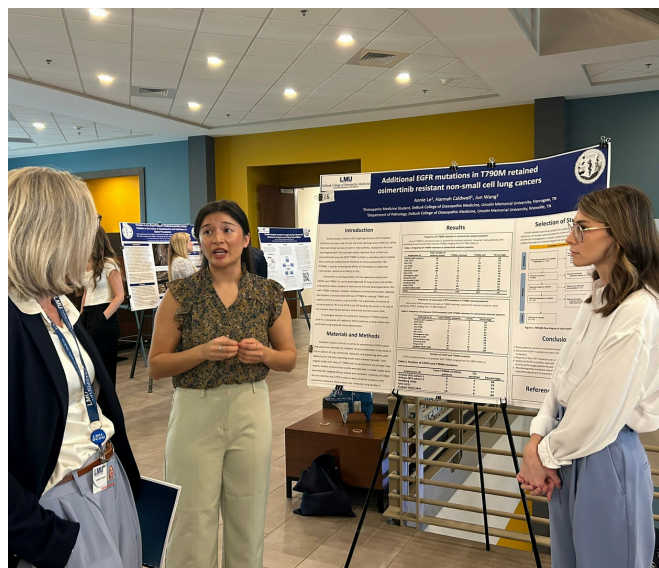
Research Day 2024

Find all presentation abstracts and a full list of winners at www.lmunet.edu/orgsp/research-day

Lincoln Memorial University hosted its eighth annual Research Day on April 12, 2024, at the Richard A. Gillespie College of Veterinary Medicine building on the Harrogate campus. Over 150 students and faculty from across the university's various schools came together to give oral and poster presentations. Dr. Robert Stubblefield, Executive Vice President for Academic Affairs, told students in his welcoming letter, "By sharing your work, you are not only expanding our collective understanding here in Harrogate, Tennessee, but you are also taking the initial steps to shape insight within your respective fields. Your contributions serve as a testament to the intellectual vitality found among our students, faculty, and staff."

LMU faculty and staff served as panel judges. First place awards were assigned in each of the day's four categories. A list of first place winners in the individual categories are listed here.

Interested in participating in Research Day 2024? Information about that event will be released in January 2025. Faculty and staff who are interested in serving as event volunteers or on the Research Day Committee should reach out to ORGSP.



Undergraduate Oral Presentation

Joshua Boldon, School of Mathematics and Sciences: Synthesis and Physiochemical Properties of a Trifluoroacetamido Derivative of Acetaminophen

Undergraduate Group Oral Presentation

Stewart Thacker and Christian Piercy, School of Mathematics and Sciences: Overview of Coastal Marine Trophic Diversity and How Trophic Diversity Affects Ecosystem Health

Undergraduate Poster Presentation

Mackenzie Amoureux, School of Business: The Effects of a Multi-Generational Work Force in Today's Society

Undergraduate Group Poster Presentation

Kassidy Miller, Katy Pozzuto, Alex James, and Jantai Malataev, School of Business: Strategic Analysis: JP Morgan Chase & Co. (NYSE: JPM)

Graduate Group Oral Presentation

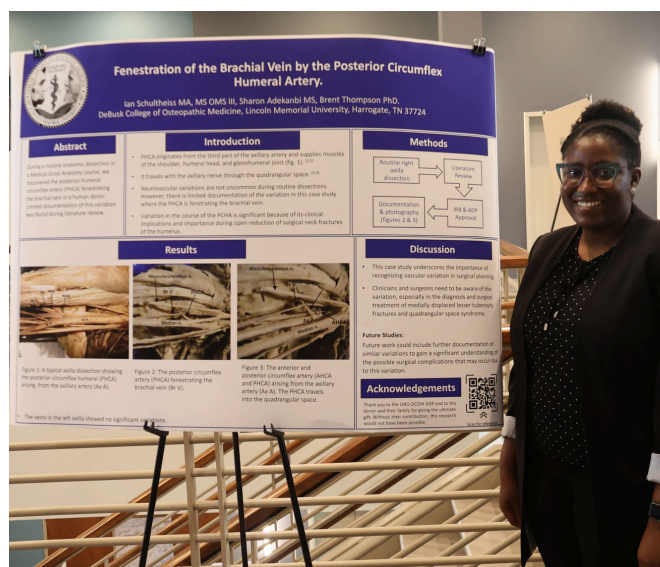
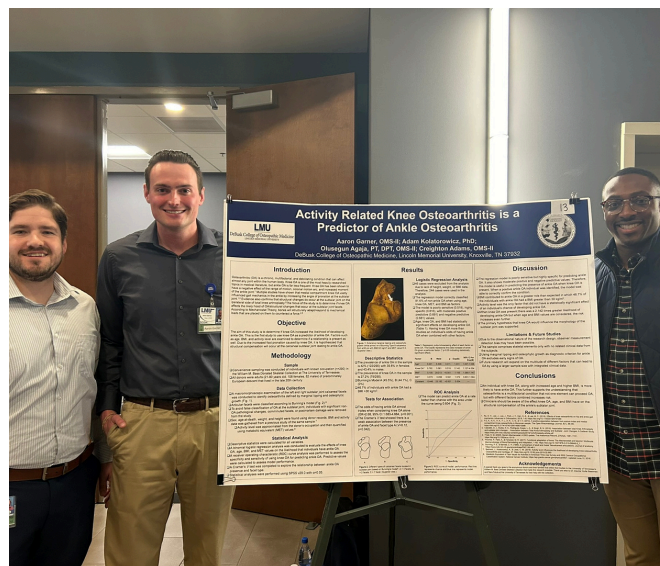
Erick Moberg, Mariah Bartz, Erinn Conlin, Conor McGrew, Grant Boxey, and John Gassler, DeBusk College of Osteopathic Medicine: Prevalence of Plaques Discovered in the Spinal Cord Region of Human Anatomical Donors After Completing a Full Laminectomy Procedure

Graduate Poster Presentation

Madison Moyers, Carter and Moyers School of Education: Yoga as Therapeutic Treatment Modality for PTSD and other Trauma Related Disorders

Graduate Group Poster Presentation

Ian Schultheiss, Tyler Cameron, Cody Carr, Conor McGrew, Eric Moberg, and John Gassler, DeBusk College of Osteopathic Medicine: Efficacy of 3D Printed Models in Anatomic Education





LMU Mini-Grant Awards

The LMU Mini-Grants Program is intended to support and encourage scholarly activity at LMU. These grants are made available to assist junior faculty in building a portfolio or for veteran faculty who wish to initiate scholarly activities in a new area. Meet the 2024-2025 Awardees below.

Gavin Kirton, Chemistry and Physics
Cloud Point Extraction and Pre-Concentration of Chromium for Environmental Analysis

The project is intended for undergraduate student research in the School of Mathematics and Sciences. It should lead to further applications in environmental monitoring of chromium, as well as possible extensions to protocols for other trace metals.

Jillian Pindar, Occupational Therapy
Lincoln Memorial University Occupational Therapy Pro-Bono Clinic

The Doctor of Occupational Therapy (OTD) program at Lincoln Memorial University-Knoxville is seeking to develop and implement a student-led pro-bono clinic to provide occupational therapy services to the

underserved population of Knoxville. This pro-bono clinic will provide specialized care to residents of Knoxville while also providing fieldwork students with direct patient care learning experiences.

Tyler Langford and Tim Yost, Sport and Exercise Science
The Utility of Blood Flow Restriction as a Dynamic Preparatory Activity Prior to a 2-mile Run Trial

Blood flow restriction (BFR) training has demonstrated significant and safe improvements in various areas of human performance including increases in muscle hypertrophy, strength, and cardiorespiratory fitness (VO₂max). This research project will assist acute improvements or decrements in cardiorespiratory performance following a brief warm-up with a BFR device.

Filter by Name:

Advanced Technology Corporation

253 Midway Lane Oak Ridge, TN 37830 USA

Advanced Technology Corporation provides in vitro studies, bioanalysis, quality assurance, and clinical pharmacology.

**Aphena Pharma Solutions**

1920 Fisk Road Cookeville, TN 38506 USA

Aphena provides turnkey contract packaging, repackaging and manufacturing.

**ACH Food Companies Inc**

7171 Goodlett Farms Parkway Cordova, TN 38016

ACH is an indirect wholly-owned subsidiary of Associated British Foods (LON: ABF), a diversified international food, ingredient and retail group with global sales of \$16.3 billion. At ACH Food Companies, Inc., we're focused on brands that are #1 or #2 in their categories. In North America, we market, sell and manufacture a

**AbBioSci**

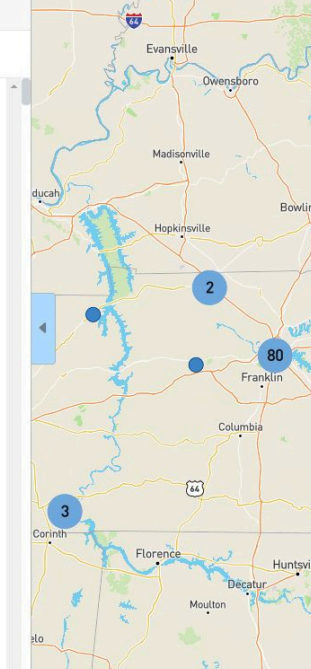
Franklin, TN United States

AbBioSci offers antibody development, characterization, conjugation, and engineering services.

**Advansta**

111 10th Ave South Suite #110 Nashville, TN, 37203 United States

Advansta supplies buffers, reagents, antibodies, and conjugates to support life science research in protein analysis services.



Contract Research Map

Locating Partners for Your Research

In an effort to highlight research tools that are available to the LMU community, ORGSP will be highlighting these aids in each issue of The ORGSP Newsletter.

What is the Contract Research Map?

The Contract Research Map, maintained by scientist.com, is a valuable resource for LMU researchers who want to conduct animal research and are seeking federal funding. Through this platform, researchers can connect with a network of pre-qualified research organizations that specialize in animal studies. This includes institutions with the necessary certifications and compliance standards, ensuring adherence to PHS policies and guidelines.

Researchers can utilize the Contract Research Map to identify potential collaborators based on specific criteria such as expertise, location, and project requirements. The website is free, and it is a good first step in initiating a CRO Search. Additionally, while many LMU researchers who are searching for a CRO may be focused on animal research, the search engine is not limited to use in this area and provides options for a number of clinical trial services.

Once a CRO is identified, the researcher should contact the ORGSP about interest in exploring

and/or developing a formal relationship with the CRO. The ORGSP will provide guidance in conjunction with the Institutional Care and Use Committee (IACUC). Should the relationship with the CRO move forward, an "Inter-Institutional Agreement: Domestic Collaborating Organizations" form will be provided to formalize the relationship and set terms for monitoring compliance.

Access the Contract Research Map

contractresearchmap.com

Key to Tennessee at

[contractresearchmap.com/
places/tennessee](http://contractresearchmap.com/places/tennessee)

Key to Kentucky at:

[contractresearchmap.com/
places/kentucky](http://contractresearchmap.com/places/kentucky)

Key to Florida at:

[contractresearchmap.com/
places/florida](http://contractresearchmap.com/places/florida)



Scholarship from the College of Dental Medicine

Publications:

Sorin Boeriu, **Timothy L. Hottel**, Cristian Chirla, Philip Chirla, **Stefan A. Hottel**, Teodora Boeriu. Managing Multiple Recession Defects Associated with Noncarious cervical lesions. Decisions in Dentistry, January/February 2024

Boeriu, S., **Hottel, T.L.**, Chirla, C. & Chirla, P.: Recession Defect on a Maxillary Single Tooth Implant. Dec. in Dent., Vol. 10 (3), pp. 16-19, March, 2024.

Boeriu, S., **Hottel, T.L.**, Saltz, A., Chirla, C., Chirla, P., Hottel, S.A. & Boeriu, T.: A Novel Approach to Treating Retrograde Peri-Implantitis. Dec. in Dent., Vol. 10 (3), pp. 36-41, April, 2024.

Sanjay K Singh, Amanda Prislovsky, Donald Ngwa, **Undral Munkhsaikhan, Ammaar H Abidi**, David Douglass Brand and Alok Agrawal. C-reactive protein lowers the serum level of IL-17, but not TNF- α , and decreases the incidence of collagen-induced arthritis in mice. Frontiers in Immunology 2024 Vol. 15. DOI: 10.3389/fimmu.2024.1385085

Amal M. Sahyoun, Salwa Karboune, Unveiling four levansucrase enzymes: Insights into catalytic properties, kinetics, and end-product profiles, Process Biochemistry, Volume 141, 2024, Pages 39-49, ISSN 1359-5113,

Amal M. Sahyoun, Muriel Wong Min, Ke Xu, Saji George, Salwa Karboune, Characterization of levans produced by levansucrases from Bacillus amyloliquefaciens and Gluconobacter oxydans: Structural, techno-functional, and anti-inflammatory properties, Carbohydrate Polymers, Volume 323, 2024, 121332, ISSN 0144-8617, <https://doi.org/10.1016/j.carbpol.2023.121332>.

Chung SJ, Hadrick K, Nafiujjaman M, **Hoque Apu E**, Hill ML, Nurunnabi M, Contag CH and Kim T. Targeted Biodegradable Near-Infrared Fluorescent Nanoparticles for Colorectal Cancer Imaging. ACS Applied Bio Materials. 2024 April 4.

Gupta RD, Kothadia RJ, Haider SS, Mazumder A, Siddika N, Akhter F and **Hoque Apu E**. Toothbrushing frequency among children and adolescents in 72 countries: findings from the Global School-based Student Health Survey. Dental and Medical Problems. Accepted.



Scholarship from the College of Dental Medicine

Presentations:

Ehsanul Hoque Apu presented at the fifth annual conference in Biomedical Engineering at Linköping University in Linköping, Sweden on May 21.

Ehsanul Hoque Apu presented at the University of Oulu in Oulu, Finland, in May.

Ehsanul Hoque Apu presented in the Oncology Grand Rounds at Western University in London, Ontario, Canada, in June.

Ammaar Abidi attended the Clinical Research Innovation Day on June 20, 2024, and was presented with an Award for Excellence in Oral Health Research.

Karima Ait-Aissa will present at the International Vascular Biology Meeting in Amsterdam, Netherlands, July 2-5.

Publications

Sorin Boeriu, **Timothy L. Hottel**, Cristian Chirla, Philip Chirla, **Stefan A. Hottel**, Teodora Boeriu. Managing Multiple Recession Defects Associated with Noncarious cervical lesions. Decisions in Dentistry, January/February 2024

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Scholarship from the College of Dental Medicine

Publications (continued)

Amal M. Sahyoun, Muriel Wong Min, Ke Xu, Saji George, Salwa Karboune, Characterization of levans produced by levansucrases from *Bacillus amyloliquefaciens* and *Gluconobacter oxydans*: Structural, techno-functional, and anti-inflammatory properties, *Carbohydrate Polymers*, Volume 323, 2024, 121332, ISSN 0144-8617, <https://doi.org/10.1016/j.carbpol.2023.121332>.

Chung SJ, Hadrick K, Nafiujjaman M, **Hoque Apu E**, Hill ML, Nurunnabi M, Contag CH and Kim T. Targeted Biodegradable Near-Infrared Fluorescent Nanoparticles for Colorectal Cancer Imaging. *ACS Applied Bio Materials*. 2024 April 4.

Gupta RD, Kothadia RJ, Haider SS, Mazumder A, Siddika N, Akhter F and **Hoque Apu E**. Toothbrushing frequency among children and adolescents in 72 countries: findings from the Global School-based Student Health Survey. *Dental and Medical Problems*. Accepted.

Karima Ait-Aissa, Xutong Guo, Madelyn Klemmensen, Denise Juhr, Linette N. Leng, Olha M. Koval and Isabella M. Grumbach, Short-term statin treatment reduces, and long-term statin treatment abolishes, chronic vascular injury by radiation therapy. *Journal of the American Heart Association*. June 21, 2024. <https://doi.org/10.1161/JAHA.123.033558>

Publications Under Review

Karima Ait-Aissa, Busuyi Olotu, **Undral Munkhsaikhan**, **Amal M. Sahyoun**, **Ehsanul Hoque Apu**, **Mary Speicher**, **Denise Terese-Koch**, **Ammaar Abidi***, **Modar Kassan***. The Impact of Absenteeism on Academic Performance Among First-Year Dental Students at Lincoln Memorial University, Tennessee, United States. *Journal of Dental Research*.

Maduka CV, Makela AV, Tundo A, Ural E; Stivers KB, Kuhnert MM, Alhaj M, **Hoque Apu E**; Ashammakhi N, Hankenson KD, Narayan R, Elisseeff JH and Contag CH. Regulating the proinflammatory response to composite biomaterials by targeting immunometabolism. Under review in *Bioactive Materials*.



Scholarship from the College of Dental Medicine

Publications Under Review (Continued)

Gupta RD, Haider SS, Jahan SS, Islam MI, Mazumder A, Zafar MS, Siddika N and **Hoque Apu E**. Prevalence and associated factors of last dental visit and teeth cleaning frequency in Bangladesh, Bhutan, and Nepal: Findings from nationally representative surveys. Under review in PLOS Global Public Health.

Pending Manuscripts

Steven Quintero, Karima Ait-Aissa, Undral Munkhsaikhan, Amal M. Sahyoun, Ehsanul Hoque Apu, Ammaar Abidi, Modar Kassan. Exploring the Relationship Between Periodontal Diseases and Osteoporosis: Potential Role of Butyrate.

Undral Munkhsaikhan, Karima Ait-Aissa, Amal M. Sahyoun, Ehsanul Hoque Apu, Ammaar Abidi, Adam Kassan*, Modar Kassan*. Lomitapide: Navigating Cardiovascular Challenges with Innovative Therapies.

Molly Anderson, Karima Ait-Aissa, Undral Munkhsaikhan, Amal M. Sahyoun, Ehsanul Hoque Apu, Ammaar Abidi, Modar Kassan. Akkermansia Muciniphila as a Potential Guardian Against Oral Health Diseases.

Amal M. Sahyoun, Salwa Karboune, Synthesis of hetero-galacto-fructo-oligosaccharides and their corresponding oligo/polylevans by the bi-enzymatic system of levansucrase and β -galactosidase.



Scholarship from the Richard A. Gillespie College of Veterinary Medicine

Publications

Wood, P.L.; Le, A.; Palazzolo, D.L. Comparative Lipidomics of Oral Commensal and Opportunistic Bacteria. *Metabolites* 2024, 14, 240. <https://doi.org/10.3390/metabo14040240>

Wisnieski, L., Factors associated with behavioral and mental health outcomes in veterinarians involved in disaster responses. *Disaster Medicine and Public Health Preparedness* (Under Review)

Wisnieski, L. Mortality, Payer Status, and Health Disparities in Appalachian and non-Appalachian Kentuckians with Digestive System Cancers: A Retrospective Cohort Analysis. *Journal of Rural Health* (Under Review)

Wisnieski, L., Carney, K., and Vroegindewey, G. (2023). Adverse Childhood Experiences, resiliency, and academic performance in veterinary students. *Proceedings of International Conference on Social and Education Sciences* (In press).

Hunt JA, Moses MS, Wisnieski L, Anderson SL. (2023). Student experience and clinicians' longitudinal evaluations demonstrate diversity of experience and achievement of day-one competency in a distributed model of clinical education: A mixed-methods study. *Journal of Veterinary Medical Education*. In press.

Devine E, McCracken M, Miller L, Miller D, Anderson SL, Hunt JA. Development and validation of an equine castration model and rubric. *Journal of Veterinary Medical Education*. Advance Access Article. DOI: 10.3138/jvme-2023-0118

Wood, P. L., Wood, M. D., & **Kunigelis, S. C.** (2023). Pilot Lipidomics Study of Copepods: Investigation of Potential Lipid-Based Biomarkers for the Early Detection and Quantification of the Biological Effects of Climate Change on the Oceanic Food Chain. *Life*, 13(12), 2335.



Scholarship from the Richard A. Gillespie College of Veterinary Medicine (continued)

Abstracts

Long hours, lower than expected wages, and a lack of work-life balance are hurting the equine veterinary workforce. March 2024. AAEP Annual Convention. **Lauren Wisnieski**, 1. Kristen Whitaker 2. Audrey Burnette 3. Jean-Yin Tan 4. Megghan Graves 5. **Julie Hunt** 6. **Elizabeth Devine** 7. **Stacy Anderson** 8. Katherine Kirkendall.

Presentations

Julie Hunt (with, M. Simons, R. Farrell, S. Baillie and B. Fransson) presented Panel discussion: Best practices in surgical education at AVSC Surgery Summit in Louisville, Kentucky.

Wisnieski, L., Gruszynski, K., Shock, B., and Faulkner V. presented Predicting human and dog Lyme disease incidence using Google Trends data at CRWAD

Proceeding

Vroegindewey, G., "World Organization for Animal Health Platform on Animal Welfare for Europe Survey on Veterinary Service Preparedness for Natural Disasters," World Association for Disaster and Emergency Medicine Conference, Killarney, Ireland.

Awards

Lauren Wisnieski, Lincoln Award for Outstanding Scholarship and Professional Achievement



Scholarship from the DeBusk College of Osteopathic Medicine

Awards

Danielle Darter, M.D. - 2024 Leonard Tow Humanism in Medicine Award. Presented by the Arnold P. Gold Foundation

Anne Marie Zeller, D.O. - American Osteopathic Academy of Sports Medicine 2024 Award of Fellow

Jenna Aungst, OMS II - College of American Pathologists Distinguished Medical Student Award, May 14, 2024

Carly Horne, OMS I - Mayo Clinic Research Scholar, Summer 2024

Simeon Nelson, OMS I - National Multiple Sclerosis Society Medical Student Mentorship Program, Summer 2024

Publications

Kadevari, P., Towbin, R. B., Schaefer, C. M., & Towbin, A. J. "Ewing Sarcoma." Applied Radiology. <https://appliedradiology.com/Articles/ewing-sarcoma#>. March 5, 2024.

Piccolo, B. D., Graham, J. L., Tabor-Simecka, L., Randolph, C. E., Moody, B., Robeson, M. S., Kang, P., Fox, R., Lan, R., Pack, L., **Woford, N.**, Yeruva, L., LeRoith, T., Stanhope, K. L., & Havel, P. J. "Colonic Epithelial Hypoxia Remains Constant During the Progression of Diabetes in Male UC Davis Type 2 Diabetes Mellitus Rats." BMJ Open Diabetes Research & Care. <https://doi.org/10.1136/BMJDR-2023-003813>. March 7, 2024.

Faraz, A., **Kowalczyk, S.**, & Hendrixson, M. "A Rare Case of Non-small Cell Lung Cancer With Skeletal Metastasis to the Sartorius Muscle." Cureus. <https://doi.org/10.7759/cureus.56113>. March 13, 2024.

Gex, K. S., Leone, R. M., **Aungst, J.**, Branson, K., Gray, K. M., & Tomko, R. L. "Identifying Brief Intervention Factors to Improve Cannabis Related Outcomes in Adolescents and Young Adults: A Systematic Review of Sample Characteristics and Intervention Components." Journal of Substance Use and Addiction Treatment. <https://doi.org/10.1016/J.JOSAT.2024.209335>. March 13, 2024



Scholarship from the DeBusk College of Osteopathic Medicine

Publications (continued):

Ansah, G., Conaway, M., Childress, S., **Slater, K.**, & Vellozo, P. "The Rise and Fall of Well-Controlled Blood Pressure: Labile Hypertension Following Repair of a Ruptured Abdominal Aortic Aneurysm." Cureus. <https://doi.org/10.7759/cureus.56880>. March 58, 2024.

Rennie, C., **Rodriguez, M.**, Futch, K. N., & Krasney, L. C. "Complications Following Osseointegrated Transfemoral and Transtibial Implants: A Systematic Review." Cureus. <https://doi.org/10.7759/cureus.5704>. March 27, 2024.

Carlini, N. A., Harber, M. P., & **Fleenor, B. S.** "Acute Effects of MitoQ on Vascular Endothelial Function are Influenced by Cardiorespiratory Fitness and Baseline FMD in Middle-Aged and Older Adults. The Journal of Physiology, <https://doi.org/10.1113/JP285636>. April 3, 2024.

Slater, K. N., & Fivenson, D. "Incorporating Dermatologic Clinical Research Into Private Practice: A Review Introduction And Background." Cureus. <https://doi.org/10.7759/cureus.57733>. April 8, 2024.

Kermanshahi, N., **Hartman, H.**, Matzkin, E., & Gianakos, A. L. "Pregnancy and Infertility in Orthopedics: A Review of the Current State." World Journal of Surgery. <https://doi.org/10.1002/WJS.12179>. April 10, 2024.

Hartman, H., Tornberg, H. N., Fine-Lease, P., & Gianakos, A. "Arthroscopic Assisted Reduction of Talus Fractures Leads to Improved Clinical Outcomes at Mid-Term Follow-Up." Journal of Foot and Ankle Surgery. <https://doi.org/10.1177/2473011424S00049>. April 12, 2024.

Butler, J. J., **Hartman, H.**, Luilly Vargas, B., Dhillon, R., Randall, G. W., Wingo, T., & Kennedy, J. G. "Outcomes Following Extracellular Matrix Cartilage Allograft for the Management of Osteochondral Lesions of the Talus: A Systematic Review." Cureus. <https://doi.org/10.1177/2473011424S00083>. April 12, 2024.

Dailey, A. R. and Freeman, N.E. "A Review of Psychosocial Factors on Birth Outcomes in Women with Substance Use Disorder in the United States: The Importance of Preventing Relapse During Sustained Remission." International Journal of Medical Students. <https://doi.org/10.5195/IJMS.2024.2166>. April 12, 2024.



Scholarship from the DeBusk College of Osteopathic Medicine

Publications (continued):

Jain, A., Jandhyala, N., Hogue, B., McNeill, R. Garcia, M., Yohay, K., and Segal, D. "Development and Management of Glioma in Patients with Neurofibromatosis Type I" *Neurology*. <https://www.neurology.org/doi/abs/10.1212/WNL.0000000000205907>. April 9, 2024.

Reinoso, T. R., Heron, M. J., **Dane, J. M.**, Rezwan, S. K., Broderick, K. P., & Caffrey, J. A. "530 Fractured Coverage for Fractional Laser: Describing the Insurance Landscape of Laser Therapy for Burn Scars." *Journal of Burn Care & Research*. <https://doi.org/10.1093/JBCR/IRAE036.165>. April 17, 2024.

Wood, P.L.; Le, A.; Palazzolo, D.L. "Comparative Lipidomics of Oral Commensal and Opportunistic Bacteria." *Metabolites* 2024. <https://doi.org/10.3390/metabo14040240>. April 20, 2024.

Nguyen, C., and Schutter, D. "Adaptability in the Midst of Anatomical Challenges: A Case of Situs Inversus Totalis in Laparoscopic Cholecystectomy." *Cureus*. <https://doi.org/10.7759/cureus.58770>. April 22, 2024

Skoczek, A. C., Ruane, P. W., Holland, A. B., **Hamilton, J. K.**, & Fernandez, D. L. "Robotic Transversus Abdominis Release (TAR) for Ventral Hernia Repairs is Associated with Low Surgical Site Occurrence Rates and Length of Stay Despite Increasing Modifiable Comorbidities." *Hernia* 2024. <https://doi.org/10.1007/S10029-024-03044-6>. May 1, 2024.

Cochran, B. L., **Jallo, J.**, Coican, A., Hurst, K., Sagasser, J., Greenfield, M. F., Cochran, B. L., Jallo, J., Coican, A., Hurst, K., Sagasser, J., & Greenfield, M. F. "Phytophotodermatitis From Lime Margaritas on a Mexico Vacation." *Cureus*. <https://doi.org/10.7759/CUREUS.59674>. May 5, 2024.

Alonso, G., **Tubbs, P.**, & Lossada, M. "Alternative Use of Femoral Compression System in Palliative Care: A Case Report." *Cureus*. <https://doi.org/10.7759/cureus.59827>. May 7, 2024.



Scholarship from the DeBusk College of Osteopathic Medicine

Publications (continued):

Kommineni, S. S., Gullapalli, D., **Gray, C.**, Vangara, A., & Ganti, S. S. "What Is Growing in the Garden? A Case of Severe Blastomycosis in Poorly Controlled Diabetes Mellitus." American Thoracic Society International Conference Meetings Abstracts American Thoracic Society International Conference Meetings Abstracts, https://doi.org/10.1164/AJRCCM-CONFERENCE.2024.209.1_MEETINGABSTRACTS.A2370. May 19, 2024.

Hartman, H., Kermanshahi, N., Matzkin, E., Keyser, E. A., & Gianakos, A. L. "Decreased Fertility Awareness Amongst Surgeons and Surgical Trainees and Potential Role of Formal Fertility Education." Journal of Surgical Education. <https://doi.org/10.1016/J.JSURG.2024.03.011>. May 14, 2024.

Hartman, H., Cacace, A., Leatherman, H., Ashkani-Esfahani, S., Guss, D., Waryasz, G., DiGiovanni, C. W., & Gianakos, A. L. "Gender Differences in Achilles Tendon Ruptures—A Retrospective Study and a Review of the Literature." The Journal of Foot and Ankle Surgery. <https://doi.org/10.1053/JJFAS.2024.04.005>. May 17, 2024.

Abstracts, Posters, and Presentations

Sudhi, S., and Miller, L. "Nurse Dietary Intake and Continuous Blood Glucose Measurement." Providence System Nurse Research Conference. March 1, 2024.

Crooks, E., Danielson, L., Green, W., Flerchinger, R., Pavlencob, C., Wamboldc, L., Hicksc, S., **Miller, L.**, Spring, G., Sattgast, J., and Weeks, D. "Pain Prevalence Among Patients Attending Outpatient Cardiac Rehabilitation." Eastern Washington University Celebration of Scholarly Works. March 19, 2024.

Samuel, J. and Gromley, A. "Analyzing the Role of Centrosome Proteins in the Development of Melanoma." SNMA: AMEC 2024. March 2024.

Gritton, C., Kolatorowicz, A., Chesnut, J. and Harper, A. "Visuospatial Ability, Psychomotor Ability, and Educational Outcomes of Ultrasound Training in Conjunction with Medical Gross Anatomy: A Randomized Controlled Trial in First Year Osteopathic Medical Students." Anatomy Connected. March 22-25, 2023.



Scholarship from the DeBusk College of Osteopathic Medicine

Abstracts, Posters, and Presentations

Miller, L. "Student Debusk Summer Research Scholar Award Application – Introduction and Tips." LMU-DCOM Student Informational Session. March 29, 2024.

Gulley, C. "Grant Writing Workshop." LMU-DCOM Faculty and Staff Development. April 3, 2024.

Phemister, L., Hood, E., **Phemister, AM., Hinton, A., and Carter, J.** "Presentation and Treatment of Intestinal Histoplasmosis. Appalachian Research Form. April 5, 2024.

Schultheiss, I. and Thompson, B. "Fenestration of the Lateral Brachial Vein by the Posterior Circumflex Humeral Artery: A Case Study." American College of Osteopathic Surgeons – Medical Student Symposium. April 5-7, 2024.

Rangel, T., **Miller, L.**, and Wilson, M. "Prevalence and Characteristics of On-Shift Napping Among Hospital Based Nurses." Western Institute of Nursing. April 2024.

Gromley, Z. "Getting to Clerkship and Beyond: Adaptable Biochemistry Learning Objectives Integrating Basic Clinical Science Concepts for any Curriculum." 2024 CGEA Regional Conference. April 3-5, 2024.

Fleenor, B. "Mitochondrial-Targeted Antioxidant Enhancing Effects on Vascular Endothelial Function in Middle-Aged and Older Adults is Influenced by Cardiorespiratory Fitness." American Physiological Summit. April 4-7, 2024.

Huff, W. and Chelf, S. "A Case Report of Retroaortic Left Renal Vein: An Imperative Inclusion in Medical Education." American College of Osteopathic Surgeons – Medical Student Symposium. April 5-7, 2024.

Ro, J., Wood, K., and Wojtasik, L. "Surgical Management of Colorenal Fistula Formation Following Percutaneous Cryoablation of Renal Mass." American College of Osteopathic Surgeons – Medical Student Symposium. April 5-7, 2024.



Scholarship from the DeBusk College of Osteopathic Medicine

Abstracts, Posters, and Presentations (continued):

Gulley, C. "Grant Writing Workshop." LMU-DCOM Faculty and Staff Development. April 8, 2024.

Miller, L. "Intramural Grant Funding Application and Working with Students." April 9, 2024.

Kesari, J., **Gromley, Z.**, LeClair, R. Emine, E., Fong, S., Henshaw, M., Manzerra, P., Ritchie, R., Rogstad, D., and Spicer, D. "Getting to Clerkship and Beyond: Adaptable Biochemistry Learning Objectives Integrating Basic and Clinical Science Concepts for any Curriculum".SGEA Annual Conference. April 11-13, 2024.

Moore, T. "Osteopathic Considerations for Patients Struggling with Opioid Use Disorder." Opioid Education Symposium 2024. April 15, 2024.

Jain, A. and Yohay, K. "Development and Management of Glioma Patients with Neurofibromatosis Type 1." American Academy of Neurology Annual Meeting. April 14-17, 2024.

Sayed, M., Abdelbary, M., Pillai, B., Alshammari, A., Jahan, A., Ergul, A., and Fagan, S. "Delayed Administration of an Angiotensin (II) Type 2 Receptor Agonist for the Treatment of Ischemic Stroke: A Preclinical Trial in Hypertensive Rats." American Society for Neurochemistry. April 17, 2024.

Kauffman, Z., Ruff, C., Harper, A., and Augustyniak, R. "Why is Identification with Osteopathy Decreasing in Medical Students?" American Association of Colleges of Osteopathic Medicine (AACOM). April 17-19, 2024.

Freeman, N.E. "Expanding Student Research Opportunities via Enhanced Infrastructure and Faculty Support." American Association of Colleges of Osteopathic Medicine. (AACOM). April 17-19, 2024.

Sico, I. and Jimenez, S. "Medical and Pharmacy Students' Perceptions of Teamwork and Communication on Patient Safety Practices." American Association of Colleges of Osteopathic Medicine (AACOM). April 17-19, 2024.



Scholarship from the DeBusk College of Osteopathic Medicine

Abstracts, Posters, and Presentations (continued):

Turner, M., and Ruff, C. "Using Faculty Needs Assessment to Guide Faculty Development Programming." American Association of Colleges of Osteopathic Medicine (AACOM). April 17-19, 2024.

Moore, T., Buchanan, J., Jimenez, S. "Creating Osteopathic Manipulation Treatment (OMT) Awareness in the Treatment of Substance Use Disorder for Multidisciplinary Learners." American

Rheault, I., Gunterstock, B., and **Defranco, G.** "Enhancing Interpersonal Communication Confidence through Empathy Training." American Association of Colleges of Osteopathic Medicine (AACOM). April 17-19, 2024.

Khan, T., Harrod, J., Kahhal, S., Sowder, H., Headrick, J., and Mondal, D. "Anticancer Potential of the Dietary Supplement Dimethyl Sulfone on Aggressive Cancer Cells." American Association of Colleges of Osteopathic Medicine (AACOM). April 17-19, 2024.

Dunn, S. and Douglas, E. "Navigating the Unknown: A Case Study of Prenatal Diagnosis and Management of TRAP Sequence." Ultracon 2024. April 17-19, 2024.

Flores, K., Geers, K. and Hamilton, B. "Differing Factors Amongst Communities that Influence, Polarize, and Contribute to Covid-19 Vaccine Hesitancy." 2024 Student Advocacy, Leadership, Unity, and Diversity Summit. (SALUD 2024). April 27-29, 2024.

Sons, K. and Thompson, B. "Bilateral Anotia and Common Comorbidities: A Case Study of a Human Donor." American College of Osteopathic Pediatricians (ACOP). April 25-28, 2024.

Neiman, N. and Wren, A. "Support Groups for Pediatric Inflammatory Bowel Disease: A Promising Intervention to Support Adaptive Coping Styles and Improve Wellbeing. American College of Osteopathic Pediatricians (ACOP). April 25-28, 2024.

Walker, K., Hart, S., Guihert, J., Harper, A., Wang, J. and Thompson, B. "Understanding Anotia in a Cadaveric Donor: Micro-CT Reconstruction of the Inner Ear and Histopathological Analysis of the Kidneys." American College of Osteopathic Pediatricians (ACOP). April 25-28, 2024



Scholarship from the DeBusk College of Osteopathic Medicine

Abstracts, Posters, and Presentations (continued):

Banks, J. and Skarin, L. "A Toast: Here's Blood In Your Eye (a case report on hereditary hemorrhagic telangiectasia (HHT)." American Osteopathic Colleges of Ophthalmology & Otolaryngology–Head and Neck Surgery (AOCOO-HNS) 2024 Annual Clinical Assembly. May 1-5, 2024.

Hart, S., Sons, K. Thompson, B., and Harper, T. "Understanding Anotia in a Cadaveric Donor." American Osteopathic Colleges of Ophthalmology & Otolaryngology–Head and Neck Surgery (AOCOO-HNS) 2024 Annual Clinical Assembly. May 1-5, 2024.

Corell, J., Dailey, A., and Douglas, E. "Perceived Risk of Developing Certain Cancers in People Who Smoke in Eastern Kentucky." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024. ***1st place poster award**

Cheney, C., Kowalczyk, S., and Cziep, M. "A Cortisol-Secreting Adrenal Adenoma." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Kowalczyk, S., Cheney, C., and Lewis, J. "Kommerell Diverticulum with Aberrant Left Subclavian Artery and Right Aortic Arch: A Case Report." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Browning, A., and Miller, L. "Comparison of Continuous Blood Glucose Measurements in Nurses Working Either 12-hour Day or Night Shifts." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Nguyen, C. and Schutter, D. "Adaptability in the Midsts of Anatomical Challenge: A Case Report on Situs Inversus Totalis in a Laparoscopic Cholecystectomy." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Sons, K. and Zeller, A.M. "An Osteopathic Approach to COVID Patients." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024. ***2nd place poster award.**

Ro, J., and Wotjasik, L. "Surgical Management of Colorenal Fistula Formation Following Percutaneous Cryoablation of Renal Mass." Tennessee Osteopathic Medical Association (TOMA) May 3-5, 2024.

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Scholarship from the DeBusk College of Osteopathic Medicine

Abstracts, Posters, and Presentations (continued):

Neiman, N., Joksas, J., Sickel, E., and Zeller, A.M. "Health Professional Students Receiving Osteopathic Manipulative Treatment: An Interdisciplinary and Interprofessional Activity to Improve Attitudes Towards Osteopathy and Interprofessional Collaboration." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024. ***3rd place poster award.**

Rosner, J., Mahavadi, S., Naik, S., Kemp, S., Thakran, E., and Mondal, D. "Antiproliferative Effects of Dutasteride and Bardocolone-Methyl (CDDO-me) Combination in Prostate Cancer Cells." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Still, C., Aljameey, U., Marie, B., Black, C., Dane, J., Allsage, T., and Kolatorowicz, A. "Variation in the Great Posterior Radiculomedullary Artery: Relation to the Artery of Adamkiewicz and Importance in Spinal Procedures." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Thomas, R. and Wang, J. "Combination of anti-LAG-3 and anti-PD1 is likely to enhance the clinical response in patients with melanoma." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Brady, H. and Wang, J. "Clinical Outcomes of Crizotinib in ALK+ Non-small Cell Lung Cancer with Brain Metastasis: A Meta-Analysis." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Garner, A., Agaja, O., Adams, C., and Kolatorowicz, A. "Activity Related Knee Osteoarthritis is a Predictor of Ankle Osteoarthritis." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Park, A., Harrell, J., Williamson, T., and Cannada, L.K. "A Scoping Review on Thigh Compartment Syndrome." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Phemister, A.M. and Weiman, D. "Eloesser Flap: Procedure on Recurrent Empyema and Paraneumonic Pleural Effusion." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.



Scholarship from the DeBusk College of Osteopathic Medicine

Abstracts, Posters, and Presentations (continued):

Willeford, M. "Nostalgia Paresthetica is not a Neurologic Disorder." Tennessee Osteopathic Medical Association (TOMA). May 3-5, 2024.

Slaven, R. "Trauma-Informed Teaching Practices for EMS Education: What It Is, and Why It's Important." Vermont Healthcare Coalition, EMS, and Preparedness Conference, June 14, 2024.

Slaven, R. "Why We Need the Humanities, Improving Healthcare through movies, Music, Art, and Literature." Vermont Healthcare Coalition, EMS, and Preparedness Conference, June 14, 2024.

2024 DeBusk Summer Research Scholar Awards

Thomas, R. and Wang, J. "Combination of Anti-LAG-3 and Anti-PD-1 in Melanoma Treatment." . .

Saleem, S., Khayal, M.B., and Gromley, A. "Analyzing the Effects of the Loss of Centriolin on Wild Type and p53 Mutated Osteosarcoma Cell Lines Using CRISPR/CAS9."

Todd, E., Mondal, D. and Gromley, A. "Acute and Chronic Effects of Dimethyl Sulfone (DMSO-2) on Osteosarcoma Cell Growth In-Vitro."

Romania, T., Dresnor, J., and Fleenor, B. "Positional Subendocardial Viability Ratio (SEVR) Analysis."

Dresnor, J., Romania, T., and Fleenor, B. "Positional Aortic Hemodynamics."

Campbell, K. and Wang, J. "The Clinical Efficacy of Binimetnib in Melanoma Treatment: A Systematic Review and Meta-Analysis."

O'Neal, A., Sanders, A., and Hamilton, B. "Patient Perspectives on the Quality of Healthcare."

Turner, Melinda. "Adult Learning Theories: The Science of How Your Students Learn." 2024 Teaching and Learning Conference at Pellissippi State.



Scholarship from the DeBusk College of Osteopathic Medicine

2024 DeBusk Summer Research Scholar Awards (continued):

Sanders, A., O'Neal, A., and Hamilton, B. "Patient Perspectives on the Quality of Healthcare."

Sokolovic, T., Spitzer, M., and Kunigelis, S. "Acartia Tonsa De Novo Transcriptome."

Horne, C., and Bingham, J. "Mayo Clinic Orthopedics Department Research Fellowship."

Baynard, M. and Keagy, G. "Comprehensive Review of Alternatives for Pain Management in Multi-Level Spinal Fusions."

Brady, H. and Wang, J. "Clinical Outcomes of Crizotinib in ALK+ Non-Small Cell Lung Cancer with Brain Metastasis: A Meta-Analysis."

Gaumer, J., Sayed, N., Greer, C., and Mondal, D. "Combined Anticancer Effects of CDDO-me and Dutasteride."

Shabrach, J., Ruff, C., and Augustyniak, R. "Reasons for Identification with Osteopathic Principles During the Pre-Clinical Years of Osteopathic Medical Education."

Soria, J., Baur, B., and Miller, L. "Impact of the COVID-19 Pandemic on Cardiac Rehabilitation Adherence and Participation Rates."

Ajjaoui, M., Root, C., Wiser, A., and Mondal, D. "Understanding the Role of Stem Cell – Cancer Cell Interactions in Facilitating Aggressive Tumor Growth."

Operti, M., Ebner, S., and Mondal, D. "Anticancer Effects of Dimethyl Sulfone (DMSO-2) on Prostate and Pancreatic Cancer."

Hansen, O., Spitzer, M., and Kunigelis, S. "Labidocera Aestiva Species Identification: A Novel Model for Two Emerging Fields."

Hadad, M. and Fleenor, B. "The Prediction of Pulse Pressure to Mortality."



Scholarship from the DeBusk College of Osteopathic Medicine

2024 DeBusk Summer Research Scholar Awards (continued):

Paddison, K. and Miller, L. "The Effect of Timing of Hospital Admission for Cardiac Event on Patient Outcomes."

Young, A. and Thompson, B. "Histological Studies of Anatomical Donor Samples and Their Importance to Medical Education."

Jones, C., Bond, T., and Keagy, G. "A Glioblastoma Hidden Between the Lines: A Case Study of an Author's Unfortunate Fate."

Pastore, L. and Hamilton, B. "Diversity, Equity and Inclusion in Osteopathic Medical Schools."

Extramural Faculty Awards

Darter, D. Leonard Tow Humanism in Medicine Award presented by The Arnold P. Gold Foundation May 10, 2024.

Zeller, A.M. American Osteopathic Academy of Sports Medicine Fellow.

2024 Extramural Student Grants and Awards

Aungst, J. College of American Pathologists Distinguished Medical Student Award. May 14, 2024.

Scholarship from the School of Mathematics and Sciences

Presentations:

Taylor Langford presented "Assessment of a Self-Paced Protocol for Testing Aerobic Capacity in SCI Individuals" at the 2024 Annual Virtual Clinical Exercise Physiologist Association Conference in February.

Julie Hall presented "Mini-CURE molecular genetics lab exercises using *C. elegans* and toxicology" in the Forward Genetics: Building an Equitable Scientific Future Through Education and Outreach session at the Allied Genetics Conference in Washington, D.C. in March.

Tyler Langford presented "Metabolic Cost of Underwater Treadmill Exercise Among Individuals with Incomplete Spinal Cord Injury" at the Annual American College of Sports Medicine Conference in Boston, Massachusetts in May.

Boldon, J. A. Shell, T. A. (mentor) Synthesis and physicochemical properties of the trifluoroacetamido derivative of acedoben. Eastern Tennessee Collegiate Division Meeting of the Tennessee Academy of Science, Morristown, TN, April 15, 2024. (first place undergraduate oral presentation award)

Boldon, J. A.; Shell, T. A. (mentor) Synthesis and physiochemical properties of a trifluoroacetamido derivative of acetaminophen. Lincoln Memorial University Research Day, Harrogate, TN April 12, 2024. (undergraduate oral presentation award)

Boldon, J. A.; Shell, T. A. (mentor) Synthesis and physiochemical properties of a trifluoroacetamido derivative of acetaminophen. Blue Ridge Undergraduate Research Conference, Elizabethton, TN April 11, 2024.

Akers, P. C.; Shell, T. A. (mentor) Synthesis and lipophilicity of a fluorinated derivative of N,N'-diacetyl-p-phenylenediamine. Blue Ridge Undergraduate Research Conference, Elizabethton, TN April 11, 2024.

Cole, P. C.; Martinez, B. I.; Shell, T. A. (mentor) Synthesis and lipophilicity of the para fluorinated derivative of phenytoin. Blue Ridge Undergraduate Research Conference, Elizabethton, TN April 11, 2024.

HAMILTON MATH & SCIENCE BUILDING

Scholarship from the School of Mathematics and Sciences

Presentations:

Kingman, M. A.; Morris, I. G.; Shell, T. A. (mentor). Synthesis of light-responsive Vitamin B12 conjugates of selumetinib and temozolomide for targeted cancer therapy. Blue Ridge Undergraduate Research Conference, Elizabethton, TN April 11, 2024.

Racicot, P. Y.; Santamaria, J.; Shell, T. A. (mentor). Synthesis of light-responsive Vitamin-B12 conjugates of SN38 and toremifene for targeted cancer therapy. Blue Ridge Undergraduate Research Conference, Elizabethton, TN April 11, 2024.

Noel Cawley presented "Online (Hybrid) Ecology Course Developed for Non-science Majors" (oral) and "Viola species found in Pine Mountain State Resort Park, Kentucky" (poster) at the Association of Southeastern Biologists Annual Meetings in Chattanooga, Tennessee.

Simms, J., Liechty, T., Woolf, J., Trad, A. M., Richards, K. A. (2024). The development of student-athlete conceptualizations of leadership. Oral Presentation at the North American Society for Sport Management Conference, 2024.

Simms, J., Liechty, T., Woolf, J., Trad, A. M., Richards, K. A. (2024). The leader at my side: How intercollegiate student-athletes perceive leadership. Oral Presentation at the North American Society for Sport Management Conference, 2024.

Richards, K. A., Trad, A. M., **Simms, J.**, & Woolf, J. (2024). College student socialization and social and emotional learning in an after-school program. Oral Presentation at the American Educational Research Association Conference, 2024.

Publications:

Brandt, L., Burton, A.C., Beirne, C., Gaynor, K.M. et al. Mammal responses to global changes in human activity vary by trophic group and landscape. *Nat Ecol Evol* (2024).
<https://doi.org/10.1038/s41559-024-02363-2>.

LaRoy Brandt's co-authored article, "Maderas Rainforest Conservancy: A One Health Approach to Conservation," <https://doi.org/10.1002/ajp.23293>, in the *American Journal of Primatology*, has been recognized as the most widely cited article from January 2022 to December 2023.



Scholarship from the School of Business

Presentations:

Hild, C. (2023). Learning from History: Ten Principles from Senseis of the Past [Conference Presentation]. Southeastern Institute for Operations Research and the Management Sciences (SEINFORMS). Myrtle Beach, SC.

Hild, C. & Ray, J. (2024). Addressing Challenges in Teaching Analytical Thinking to Current and Future Managers [Conference Presentation]. Southeast Decision Sciences Institute (SEDSI) Conference 2024, Charleston, SC, United States of America.

Lane, R. (2024). Leadership: Strategies for Mitigating Attrition Amongst Call Center Agents [Conference Presentation]. Southeast Decision Sciences Institute (SEDSI) Conference 2024, Charleston, SC, United States of America.

Metz, K., Hild, C., & Ray, J. (2024). Ethical Considerations with the Use of Big Data Analytics and AI for Market Segmentation and Targeting Strategies [Conference Presentation]. Southeast Decision Sciences Institute (SEDSI) Conference 2024, Charleston, SC, United States of America.

Ray, J., Bowers, B., Brambley, A. & Hinkle, K. (2024). Strategic Flexibility in Higher Education [Conference Presentation]. Southeast Decision Sciences Institute (SEDSI) Conference 2024, Charleston, SC, United States of America.

Simms, J., Liechty, T., Woolf, J., Trad, A. M., Richards, K. A. (June, 2024). The development of student-athlete conceptualizations of leadership. North American Society for Sport Management Conference. Minneapolis, MN.

Simms, J., Liechty, T., Woolf, J., Trad, A. M., Richards, K. A. (June, 2024). The leader at my side: How intercollegiate student-athletes perceive leadership. North American Society for Sport Management Conference. Minneapolis, MN.

Richards, K. A., Trad, A. M., Simms, J., & Woolf, J. (April 2024). College student socialization and social and emotional learning in an after-school program. American Educational Research Association, Philadelphia, PA.



Scholarship from the School of Business

Presentations:

Simms, J., Petersen, J. C., (February, 2024) The more things change: A generational analysis of interscholastic athletic director roles. Applied Sport Management Association Conference. Knoxville, TN

Simms, J., Liechty, T., Donoghue, K., Trad., A. M., Richards K. A. (February 2024). Examining NCAA division I student-athlete perceptions of their athletic department's leadership. Applied Sport Management Association Conference. Knoxville, TN.

Lane, R. & Fraustro, A. (2023). Constructivism and the Gen Z Learner [Conference presentation]. Accreditation Council for Business Schools and Programs (ACBSP) Region 3 Conference 2023, Charlotte, NC, United States of America.

Metz, K., Anderson, A., Cox, L., Lane, R., & Ray, J. (2024). Evaluating Academic Achievement in Undergraduate Business Education: A Comparative Analysis Using Pre- and Post-Program Testing [Poster Presentation]. Accreditation Council for Business Schools and Programs (ACBSP) Annual Conference 2023, Miami, FL, United States of America. Status: Under Review. Submitted: April 2024.

Metz, K. & Ray, J. (2024). Extraordinary Insights: Leveraging an Effective Advisory Board for Business School Advancement [Conference presentation]. Accreditation Council for Business Schools and Programs (ACBSP) Annual Conference 2024, Miami, FL, United States of America.

Ray, J., Brnova, P., Hild, C., Metz, K., Morgan, W. (2023). Mentoring and Evaluating Graduate Student Contributions to Research Work [Conference presentation]. Appalachian College Association Annual Summit 2023, Knoxville, TN, United States of America.

Ray, J., Lane, R., Metz, K., Hild, C. (2024). Embedding Research in Graduate Courses for Working Adults: Activity Design with AI Support [Conference Presentation]. Management and Organizational Behavior Teaching Society (MOBTS) Conference 2024, Salem, MA, United States of America.

Ray, J. & Metz, K. (2023). Leveraging AI in the Classroom: Productive Uses of AI Tools for Pedagogical Purposes [Conference presentation]. International Management and Organizational Behavior Teaching Society (IMOBTS) Conference 2023, St. Andrews, Scotland.



Scholarship from the School of Business

Presentations:

Schneider, S., Cox, L., & Brnova, P. (2023). The Mountains Before Us: A Look at How We Build Community [Conference presentation]. Accreditation Council for Business Schools and Programs (ACBSP) Region 3 Conference 2023, Charlotte, NC, United States of America.

Anderson, A. & Hild, C. (2024). Comparing AI-Generated Text-based Responses Based on Type and Complexity of Question Prompt [Poster Presentation]. LMU Research Day. Harrogate, TN.

Hild, C. & Ray, J. (2024). From Skills to Analytical Thinking: A Framework for Developing Analytical Thinking for Business Decision-Making [Conference Presentation]. LMU Research Day. Harrogate, TN.

Faria, M., Griffin, G., & Holcomb, D. (2024). The Good, the Bad, and the Ugly of Building a Data Culture [Conference Presentation]. CDOIQ. Cambridge, MA.

Metz, K. (2024). Developing Yourself as a Leader [Keynote Presentation]. LMU Student Leadership Retreat: Reflect, Rejuvenate, Reignite. London, KY, United States of America.

Amoureux, M. (2024). The Effects of a Multi-Generational Workforce in Today's Society [Poster Presentation]. Tennessee Collegiate Honors Council Conference. Harrogate, TN.

Scholarship from the Center for Teaching and Learning Excellence

Presentations:

Abbie Stowell, along with Harmonize Learning, presented "Using AI to Help Instructors implement a Course Template," hosted by the Online and Professional Education Association in June 2024.



Scholarship from the Paul V. Hamilton School of Arts, Humanities and Social Sciences

Presentations:

William Hardy, “A. Lincoln Confronts Slavery, Race, and Reconstruction” (lead presenter). Library of Congress Teaching with Primary Sources Summer Teacher Institute (Knox County Schools Social Studies Teachers, 6-12), East Tennessee History Center, Knoxville, Tennessee, May 30, 2024

William Hardy, “Crash Course - Lincoln’s Life and Legacy: 10 Things You Should Know About Abraham Lincoln.” CHASE (Communications, History, Art, Social Sciences & English) Camp. Avery Hall, Lincoln Memorial University, Harrogate, TN May 29, 2024

William Hardy, “Early Tennesseans Who Shaped American Democracy” (lead presenter). “Tennesseans Who Shaped American Democracy,” Library of Congress Teaching with Primary Sources Teacher Workshop, East Tennessee History Center, Knoxville, Tennessee, May 9, 2024

William Hardy, “Lincoln’s Dilemma: Slavery, Morality, and Politics” (joint presentation with Dr. Michael Toomey). The Abraham Lincoln Center for the Study of Leadership and Public Policy Lecture Series, Abraham Lincoln Library and Museum, Lincoln Memorial University, Harrogate, TN, April 19, 2024

Scholarship from Academic Affairs

Presentations:

Natalie Sweet presented “Planning Your Funding Roadmap” to the Appalachian College Association at King University in Bristol, Tennessee, May 2024, funded by the National Science Foundation (NSF) ADVANCE Program, Award #2304868.



Recent Grant Awards

Ryan Overton (Engineering) received a Congressionally Identified Project Award, to be administered by the National Institute of Standards Technology.

Christian Crumley (Engineering) received a National Science Foundation Research Experience for Undergraduate Award in Aerospace Engineering at the University of Tennessee, Knoxville.

Grace Mahieu (Arts in the Gap) received a Chorus America grant for “Music to Fill the Gap.”

Erin Achauer and mentor **Abigail Heiniger** (Arts, Humanities, and Social Sciences) received an Appalachian College Association Ledford Scholar Research Award.

Terri Hamilton and mentor **Abigail Heiniger** (Arts, Humanities, and Social Sciences) received an Appalachian College Association Ledford Scholar Research Award.

Natalie Mueller and mentor **Tracy Mims** (Arts, Humanities, and Social Sciences) received an Appalachian College Association Ledford Scholar Research Award.

Katilee Croft and mentor **Whitney Kistler** (Mathematics and Sciences) received an Appalachian College Association Ledford Scholar Research Award.

Hannah Cure and mentor **Thomas Shell** (Mathematics and Sciences) received an Appalachian College Association Ledford Scholar Research Award.

Christian Piercy and **Stan Kunigelis** (Mathematics and Sciences/DCOM) received an Appalachian College Association Ledford Scholar Research Award.

Spencer Baldin and mentor **Barbara Shock** (Mathematics and Sciences) received an Appalachian College Association Ledford Scholar Research Award.

Zachary Greene (CVM) received a Tennessee Arts Commission Rural Arts Project Support Grant for the “Mountain Fiesta,”



Recent Award Submissions

Robin Johnson (Security) completed renewal for 2024-2025 Tennessee Highway and Safety Office grant.

Ammar Abidi (CDM), subcontract with University of Tennessee Health Science Center, "Cannabidiol (CBD) as an Alternative Therapy for Vulvodynia – a Chronic Pain Condition in Women," National Institute of Child Health and Human Development (NICHD) and Office of Research on Women.

Ammar Abidi (CDM), subcontract with University of Tennessee Health Science Center, "Managing Chronic Arthritic Knee Pain in Women: A Randomized Clinical Crossover Trial of Topical Castor Oil and Cannabidiol," National Institutes of Health.

Ammar Abidi (CDM), subcontract with University of Tennessee Health Science Center, "A Randomized Crossover Trial of Cannabidiol (CBD) as an Alternative Therapy for Vulvodynia Pain in Women," National Institutes of Health.

Elizabeth Schmidt (DCOM), subcontract with Rush University, "Supporting Enrollment and Retention of Students with Disabilities in Occupational Therapy Doctorate Programs," Spencer Foundation.

Updates to the ORGSP website:

- [Policy Page](#)
- [Student Research Opportunities Page](#)
- [Professional Development and Information Sessions Page](#)
- [Research Day Page](#)
- [Institutional Review Board Page](#)
- [Funding Resources Page](#)
- [Blue Ridge Undergraduate Conference and Research Day Page](#)



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To promote scholarly activity and research at LMU.

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We would love to showcase your accomplishments!***