The Wright State – Lake Campus 2021 – 2022 Scholarly Review

WRIGHT STATE UNIVERSITY
LAKE CAMPUS

* Annual Research Report (2021)

* Research Symposium Program (2022)

Lake Campus Research Report - 2021

Research Initiative Program Overview

The Lake Campus is home to numerous technical, associates, bachelors, and graduate programs. These programs are run across a student population of approximately 1,200 students and facilitated by 39 full time faculty. The scholarly achievements contained in this report represent the Faculty's commitment to pedagogy and their areas of study as they contribute to their classrooms, disciplines, and community.

The Lake Campus Research Initiative provides a campus-wide framework to encourage scholarly activities by faculty and students. The program is designed to support scholarship by providing funding for research infrastructure, supplies, travel, and publishing costs as well as by sponsoring events that contribute to the campus's research mission.

The Lake Campus Research Coordinator is pleased to present the seventh annual Lake Campus Scholarly Review. This report provides a listing of scholarly endeavors from Lake Campus over the 2021 calendar year and spans across all Lake Campus disciplines. Congratulations to Lake Campus for their research success and much encouragement for the future.

Strategic Highlights from 2021

- In 2021, the sixth annual Lake Campus Research Symposium displayed well over 40 research projects presented by over 90 faculty and students.

- The internal grants program that was launched in 2015 continued to provide support to both faculty and students. In 2021, the program facilitated funding for several faculty and student projects. To date, this support has facilitated over 200 examples of scholarship from the campus, ranging from publications to presentations to external proposals.

- Faculty and faculty mentored students produced over 70 units of scholarship - spanning peer reviewed journal articles, contracts and grants, books, book chapters, book reviews, novelettes, reference works, short fiction works, plays, and scholarly presentations at local and national conferences.

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Mission of the Lake Campus Research Initiative:

To advance scholarship and encourage lifelong learning of students and faculty by providing access to project funding, facilitating project resources and support, and hosting the Annual Research Symposium.

Research Articles

- **Attariani H**, Levitas VI. 2021. Coupled large-strain mechanochemical theory for solid-state reactions with application to oxidation, Acta Materialia, 2021, 220,117284.
- **Cavanaugh** J and **Huelskamp D.** 2021. Do you own your course? What you should know, and what you can do to protect your coursework during and after COVID-19. AURCO Journal Vol. 27, Spring 2021 p. 1-7.
- **Daniel DT.** 2021. "Invisible Beings in the Natural World: Paracelsus on Ghosts, Angels, and Elemental Creatures in the Astronomia Magna." Nova Acta Paracelsica N. F. 29 (2021): 89-129.
- Doll JC, **Jacquemin SJ.** 2021. Incorporation of feeding functional group information informs explanatory patterns of long-term population changes in fish assemblages. PeerJ. DOI: 10.7717/peerj.11032.
- **Faragher M.** 2021. "Nazi Zombies! The Undead in Wartime and the Iconography of Mass Persuasion," Revenant: Critical and Creative Studies of the Supernatural, 2021.
- **Follo, G.** (2021). "Comparing Girls' and Boys' Lived Bodies of Middle School Students in Self-Defense Utilizing Participant Observation. The Qualitative Report, 26(6), 1762-1776.
- **McGlinch GJ, Jacquemin SJ,** Lindsey LE. 2021. Estimating winter malting barley grain yield with fractional green canopy cover. Crop, Forage, and Turfgrass Management 7(1): DOI: 10.1002/cft2.20079.
- **Marshall MM.** and McCluney KE. 2021. Mixtures of co-occurring chemicals in freshwater systems across the continental US. *Environmental Pollution* 268B
- **Peterman DJ**, Ritterbush KA, Ciampaglio CN, Johnson EH, Inoue SM, and Linn TJ. 2021. Buoyancy control in ammonoid cephalopods refined by complex internal shell architecture, Nature Scientific Reports 11(1), DOI: 10.1038/s41598-021-87379-5.
- Prigge JL, Sheaffer CC, Jungers JM, **Jaqueth AL**, Lochner HL, Martinson KL. Forage Characteristics and Grazing Preference of Cover Crops in Equine Pasture Systems. Journal of Equine Veterinary Science. 2021 May 24:103663.

Technical Reports

- **McGlinch G,** Lindsey L, **Jacquemin SJ.** 2021. Tools for Estimating Winter Malting Barley Grain Yield. Ohio State University Extension Factsheet (ANR-95). Published by The Ohio State University.
- **Jacquemin SJ**, Dirksen TA, Strang B, Ewing C. 2021. Grand Lake St Marys Watershed Reconstructed Wetlands Update - 2020. Quick Facts Sheet Prepared by Ag Solutions and Lake Restoration Commission (Mercer Co, OH).

Books and Edited Collections

- **Faragher M. 2021.** *Public Opinion Polling in Mid-Century British Literature: The Psychographic Turn* (Oxford University Press), 256pp.
- **Wilson DH.** 2021. *Jackanape and the Fingermen*. Drama. Anti-Oedipus Press.

Book Chapters, Magazine Articles, Essays, Short Fiction, and Articles in Collections

- **Faragher M.** 2021. "Susan Ertz's Sisyphean Women" Lost Modernists. vol. 1, no. 1.
- **Kich M.** 2021. "Comparing Jamaica Kincaid with Other Caribbean Writers." Critcal Insights: Jamaica Kincaid. Ed. Mildred R. Mickle. Ipswich, MA: Grey House/Salem/EBSCO. 96-108.
- **Wilson DH**. 2021. "The Contours of Objective Reality: A Letter to the Father." *Alienist Magazine* 9 (January 2021): 111-15.
- **Wilson DH.** 2021. "Yesterday's Womb: A Consideration of *Game of Thrones*." *Alienist Magazine* 10 (May 2021): 90-94.
- **Wilson DH.** "Post-Solar." *Three Crows Magazine*. Issue 10. December 2021.
  "The Protocols of People and Other Monsters." *Big Other Magazine*. June 15, 2021.
- **Wilson DH.** 2021. "Marshall McLuhan." *Fifty Key Figures in Cyberpunk Culture*. Routledge, 2021.

Forthcoming Scholarship

*** Section includes works accepted, under contract, or in press but not yet published**

- Shell R, Zimmerman K, Peterman D, **Ciampaglio C, Fuelling L, Jacquemin SJ**. 2021. Vertebrate Subfossil Localities in Taylorsville MetroPark, Montgomery County, Ohio, USA. Ohio J Sci. 121(2): *In Press*
- **Jacquemin SJ, Cubberley MS.** Accepted - In **Press**. Documentation of a massive lake wide fish die off on Grand Lake St Marys with notes on long-term changes in the fish assemblage and habitat in the watershed over the past century. American Midland Naturalist.
- **Wilson DH.** 2022. *Constellations: Minority Report*. Film Criticism. Liverpool University Press.
- **Wilson DH.** 2023. *A New Canon: The Stars My Destination*. Literary Criticism. Palgrave.
- **Wilson DH.** 2024. *Usurper*. Novel. Raw Dog Screaming Press.
- **Wilson DH.** 2025. *This Is the War Room: The Science Fiction of Stanley Kubrick.* Film Criticism. Liverpool University Press.
- **Wilson DH.** 2025. *Kill the Reader: The Alienist Essays.* Nonfiction Collection
- **Wilson DH.** 2026. *Diagnosis Reality and Other Plays*. Drama.
- **Wilson DH**. 2027. *Yellow Mike*. Novel.

Conference Presentations and Proceedings

- **Albayyari J.** 2021. Strategic Activities to Improve Student Success Rate in Branch Campuses. International Conference on Social and Education Sciences (ICONSES). PP 106-109, Chicago, IL.
- **Attariani H.** 2021. Research on Hybrid propulsion system was featured in Ohio research Network.
- **Cavanaugh J, Jacquemin SJ, and Junker C.** 2021. Student Course Perceptions During the COVID-19 Pandemic. Presentation at AURCO Virtual Conference.
- **Cavanaugh J, Jacquemin SJ, and Junker C.** 2021. Variation in student perceptions of higher education course quality and difficulty as a result of widespread

implementation of online education during the COVID-19 pandemic." Presentation at Virtual Lake Campus Annual Research Symposium.

- **Cline D,** Shell RC, and **Ciampaglio CN.** 2021. An Upper Carboniferous Estuarine Vertebrate Fauna from the Skelley Limestone (Conemaugh Group) of Ohio, Geological Society of America, North Central Meeting *Abstracts with Programs*. Vol 53, No. 3, doi: 10.1130/abs/2021NC-362631.
- **Ciampaglio CN** and Shell R. 2021. Lower Carboniferous Marine Vertebrates alongside Large-Bodied Crinoids in Central Kentucky, Geological Society of America, North Central Meeting *Abstracts with Programs*. Vol 53, No. 3, doi: 10.1130/abs/2021NC-362633.
- Davidson JL, **Jacquemin SJ,** Newell SE, Myers JA, McCarthy M. 2021. Effects of aluminum sulfate treatment on nutrient dynamics and a Planktothrix bloom in a shallow, semi-enclosed lake area. 10th Annual International Shallow Lakes Conference – Natal, Brazil (Event Online Amid COVID-19 Pandemic).
- **Faragher M.** 2021. Opaque Propaganda and the Everyday in *Britain in Pictures.* The Writer as Psychological Warrior Conference. Online via Durham University, UK.
- **Faragher M.** 2021. Fire or Blood?: Aestheticizing Resistance in Naomi Mitchison's Narratives of Slavery. The Space Between Society Conference, Online.
- **Follo G.** 2021. "Understanding How to Create Student Bonding in Addressing Retention and Student Success", 2021 Virtual Annual Meeting, The Society for the Study of Social Problems. August 4-7, 2021.
- **Fuelling L, Jacquemin SJ,** Stringer G, Smith A, **Ciampaglio C.** 2021. Importance of fossil and archaeological occurrence data for understanding the evolution and distribution of the Freshwater Drum (A. grunniens). Joint Meeting of Ichthyologists and Herpetologists (ASIH) – Phoenix, AZ (Event Online Amid COVID-19 Pandemic).
- Hanlon R, González-Rocha J, Bloomfield B, Gruszewski H, **Jacquemin SJ,** Westrick J, Looney H, Lassiter A, Schmale III DG. 2021. Targeted sampling of an unanticipated harmful algal bloom in Lake Anna, Virginia with aerial and aquatic robots. National Science Foundation – Principal Investigators Meeting – National Robotics Initiative – Foundational Research in Robotics (Event Online Amid COVID-19 Pandemic).
- **Jacquemin SJ.** 2021. Long Term Conservation of Grand Lake St Marys. Wright State University. Earth and Environmental Sciences Department Seminar Series. Dayton, OH.
- **Jacquemin SJ.** 2021. Saturated Buffer Research, Design, and Implementation in Grand Lake St Marys Watershed. The Ohio State University College of Food,

Agricultural, and Environmental Sciences Manure Science Review Day. MVP Dairy, Celina, OH.

- **Jacquemin SJ.** 2021. The role of reconstructed wetlands in mitigating nutrient runoff. Division of Soil and Water Conservation Districts (Ohio). Online Meeting.
- **Marshall MM.** 2021. Trace sources and impacts of DRP entering the Western Basin of Lake Erie and Grand Lake St. Mary's. *OWEA Biosolids Workshop*
- **Marshall MM.** 2021. The effects of caffeine on linked food webs via chemical diffusing substrata. *Wright State University-Lake Campus Research Symposium*
- **Morden M, Ewing C, Strang B, Doll JC, Jacquemin SJ**. 2021. Importance and challenges of monitoring harmful algal blooms in Grand Lake St Marys. Midwest Ecology and Evolution Conference – DeKalb, IL (Event Online Amid COVID-19 Pandemic).
- Salcedo G, Islam A, Dietz M, Cheema S, Leedy K, Liddy K, Green A, **Wang WS,** Salabuddin S, Chabak K, Sattler J. 2021. Towards the integration of Hf0.8Zr0.2O2-based negative capacitance dielectric on β-Ga2O3 substrates. *IEEE National Aerospace & Electronics Conference (NAECON)*, Dayton, OH.
- Sepelak N, Liddy K, Islam A, Brown J, Heller E, Dryden D, Werner E, **Wang WS,** Green A, and Chabak K. 2021. High temperature operation of β-Ga2O3 self-aligned gate MOSFET in air. *Les Eastman Conference on High Performance Devices*, South Bend, Indiana.
- Shell R and **Ciampaglio CN.** 2021 A Vertebrate Fauna from the Lower Carboniferous of Kentucky Dominated by Large Chondrichthyans, Geological Society of America, North Central Meeting *Abstracts with Programs*. Vol 53, No. 3, doi: 10.1130/abs/2021NC-362634.
- **Wang W, Attariani H.** 2021. High-k Dielectric Materials for ultra-wide band gap transistor, Lake Campus Research Symposium.
- **Wilson D.** 2021. The Logistic Function and its Application in Machine Learning, MAA Mathfest.

Active Research Agreements and Scholarly Grants

- **Attariani H.** 2021-2022. Ohio Super Computing (Computational Grant), FEM Modeling of Laser Powder Bed Additive Manufacturing. Ohio Super Computing (Computational Grant) - $1000.

LAKE CAMPUS SCHOLARSHIP

- **Attariani H.** 2020-2021. A Hybrid Fuel Cell – Battery –Capacitor Power Source for UAVs. Ohio Federal Research Network – CO PI Budget Portion $167,000 (Total Project Budget - $1,200,000).
- **Follo G.** 2020. Faculty Led Retention Program (FLRP). Wright State University Undergraduate Student Success Committee and Graduate Student Affairs Committee (FLRPC) - $3,378.
- **Huelskamp D.** 2021. Engagement = Success: A Pilot Project for First-Year Students. Students First Fund - $7200
- **Huelskamp D.** 2021. Lake Campus Research Initiative - $780.71
- **Jacquemin SJ.** 2017-2021. Reconstructed Wetland Monitoring in Grand Lake St Marys. St. Marys Community Foundation – 2020 Budget Expansion - $33,272 – Total Project $147,320.
- **Jacquemin SJ.** 2019-2023. Nutrient and Sediment Retention Potential of a Saturated Buffer in Grand Lake St Marys Watershed. Blanchard River Demonstration Farms Network – Ohio Farm Bureau - Total Project $61,468.
- **Jaqueth_A.** 2021. Floating Wetlands – A Novel Approach to Habitat Restoration and Water Quality Improvements. Lake Campus Research Initiative - $500.
- **Marshall MM, Jacquemin SJ, Jaqueth A.** 2021. Using stable isotope methods to differentiate among agricultural inorganic phosphate sources and seek patterns of addition within the Grand Lake St. Mary's watershed. Ohio Department of Higher Education/Sea Grant - $64,290.
- **Marshall MM.** 2021. Research on the use of stable isotope methods in phosphorus source identification and tracing. Women in Science Giving Circle Grant - $5000.
- **Marshall MM.** 2021. Lake Campus Research Symposium Implementation and Logistics. Western Ohio Educational Foundation - $200.
- **Wang W.** 2021. Aerodynamic bench test. Lake Campus Research Initiative - $500.
- **Wang W.** 2021. Development of HfO2 based ferroelectric materials for β-Ga2O3 transistors. Defense Associated Graduate Student Innovators (DAGSI) - $60,527

Lake Campus Research Symposium - 2022

Event Program

Research Symposium Overview

The Lake Campus Research Committee is pleased to present the sixth annual Lake Campus Research Symposium. The Research Symposium provides an opportunity for the campus to showcase the scholarly achievements of faculty and students and represents one of the pillars of the Lake Campus Research Initiative. Presentations in the symposium demonstrate faculty and student commitment to pedagogy and their respective disciplines as they advance classrooms, study areas, and community. Congratulations to Lake faculty and students for their success and much encouragement for the future.

2022 Symposium Presentation Abstracts

- **Allen A. 2022. *Dionaea muscipula* and nutrient sources.**
  Dionaea muscipula has adapted modified leaves to obtain nutrients from outside sources as a result of nutrient-poor soil. As a result, these modified leaves use nectar to attract insects and jasomonic acid to dissolve their prey. The purpose of this experiment is to observe and analyze the natural processes of glucose and acid production under the effects of electric stimulation. Eighteen plants were obtained, separated and repotted into their own designated pot, and recorded before and after electric stimulation. This understanding of the chemical responses of Dionaea muscipula can allow us to better understand the chemical production, yield, and limitations of the plants as a result of electric stimulation.

- **Avers K. 2022.The Effects of Social Media and Anxiety Among Adolescents**
  Throughout history, humanity has cultivated a pathway for development through technology. The evolution of digital technology and the creation of social media has drastically changed the way humanity communicates. From a young age, children in adolescence are accustomed to spending hours staring at a screen. This expanse of digital technology and everyday usage has led to a prominent connection between social media and an increase of mental health disorders like anxiety. Literature review of research compiled in the past will answer how strong the correlation between screen

time, digital content, and social factors play a role in influencing anxiety. Understanding the link between anxiety and social media usage is important due to the high prevalence of social media usage in everyday life. The study's analysis of the link between mental health and social media usage will help inform the audience of correlation and influence a lifestyle change.

- **Barlage A., Barlage A., Cisco B., Troutwood M. 2022. Arab American Culture.**
  This presentation goes in depth about Arab American culture and the challenges that they face through everyday life and through healthcare. Today, there are approximately 3.7 million Americans that can trace their heritage to an Arab country (Arab American Institute). Those countries include 22 countries in the Middle East and Africa. Even though 82 percent of these individuals are American citizens, they still face many obstacles in post 9/11 America (Arab American Institute). Culturally, there are many differences between American and Arab citizens. The main one being the severe discrimination that Arab Americans face. The following topics will be discussed throughout this presentation: gender roles and responsibilities of Arab culture fertility in Arab culture, potential family stressors of Arab culture, and ethnopharmacology in Arab culture. By becoming culturally aware of the Arab American population, healthcare workers will be able to provide culturally unique care for these individuals.

- **Brewster E, Siefring D, Winner O, Barhorst L. 2022. In patients with chronic pain, how does the use of medical marijuana compared with no use of medical marijuana affect long-term pain control.**
  The PICO question our group used to research was: "In patients with chronic pain, how does the use of medical marijuana compared with no use of medical marijuana affect long-term pain control. Chronic pain is a diagnosis that continues to be seen and needs to be treated in patients. Care plans and treatment plans for chronic pain can create challenges for nurses due to the fact that there is no definitive treatment for most chronic pain. Common treatment options such as: opioids, non-steroidal anti-inflammatory, and antidepressant medications can prove to be ineffective and can cause the development of major unwanted side effects. Research has shown that in combination with other forms of pain alleviating treatments, medical marijuana can aid in the relief. Medical marijuana can be dispensed in many different dosages and routes to the patients to treat a large variety of conditions characterized by chronic pain. The use of medical marijuana could be the treatment plan for chronic pain that is able to improve the

quality of life in patients, along with decreasing the demand on the patient's support system.

- **Brocious A, Hermiller Z, Timmerman K, and Yerian D. 2022. Aerodynamic Bench Test for the Study of eVTOL Propulsion.**
  Electric drones are incredibly versatile machines that serve a variety of purposes in today's world. Electric Vertical Takeoff/landing (eVTOL) drones serve in military applications, search and rescue, surveying, crime scene investigation, and numerous other modalities. Commercially available drone and eVTOL parts are widely available, but few databases exist to document their performance and compatibility. To remedy this, an existing aerodynamic test bench will be modified to gather additional data related to brushless direct current (BLDC) electrical motors, electronic speed controllers (ESC), eVTOL propellers, and available batteries. The existing design allows for current and voltage to be measured across a battery management system (BMS) that will need to be modified to consolidate existing and future data acquisition. Proposed improvements to the aerodynamic bench test include implementation of load cells to measure generated torque and thrust at given propeller speeds that will be examined using an optical tachometer. Additionally, a new data acquisition and operating program will record and run the extensive array of sensors and drone components to gather relevant data for review, export, and database entry.

- **Brooks C., Clark-Dalpe C., Wisner A., Elwer H. 2022. Chinese American Culture.**
  Chinese culture belongs not only to the Chinese but also to the whole world." President Jintao. This quote flawlessly encompasses Chinese culture in its entirety. Their culture is unique due to their emphasis on harmony, wisdom, and loyalty. This body of people possesses several core values that make up their culture. The Chinese people not only utilize traditional Chinese practices, but they also incorporate various Western World values. Within our project we will emphasize the fundamentals of Chinese culture, the family unit, health care beliefs, and nursing implications. Chinese cultural and familial practices center around ideals presented by Confucius. "Filial piety" is the principle whereby children are taught to respect their elders and elders are viewed as superior and admired for their experience and wisdom (Scroope and Evason, 2017). Several generations and extended family often live together in the same household. From a religious standpoint, "Confucianism, Taoism, and Buddhism are considered the 'three pillars' of ancient Chinese society" (National geographic 2019). On the other hand,

Chinese health care preferences and nursing implications are highly influenced by religious concepts and ethics. In regard to Chinese healthcare beliefs, qi or yin and yang is common practice for this ethnic group (Healthwise Staff, 2020). Ethical nursing incorporates cultural respect, holistic practices, and values to maintain a therapeutic relationship.

- **Bruggeman A, Meier S, Siefring A, Stammen C. 2022. African American Culture.**
  African Americans are one of the largest ethnic groups in the United States. A large number of this group are descendants of enslaved people. As European powers increasingly sought to establish long-term colonies in the Americas, increasing numbers of Africans came to these continents, often against their will. Free and enslaved Africans lived in Spanish Florida by the late 16th century, and in 1619, a year before English pilgrims arrived at Plymouth, Massachusetts, a group of "20 and odd" African people was brought to England's Jamestown colony in Virginia as slaves. The term African American comes from the African population reproducing in the United States of America. By the 21st century, there were more than 36 million African Americans in the United States, most living in the south. African cultures are represented in many forms of music, dance, art, and storytelling. With more than 1,000 languages spoken and many different religions and tribes, Africa is rich in cultural diversity. Therefore, the African American culture is also very diverse. African American homes also have remarkable diversity, with notable differences across regions of the U.S. Families often include immediate and extended relatives, with a group-oriented worldview and a strong sense of shared community.

- **Cavanaugh J. and Huelskamp D. 2022. College Completion Trends in Higher Education.**
  This study investigates current trends in higher education completion across the United States and in particular at Ohio Regional Campuses. In the United States, the number of adults with bachelor's degrees or higher over the past 15 years has steadily risen (US Census Bureau, 2021). This trend follows in the State of Ohio as well, but below the national average; Ohio ranks 14th lowest in the nation with its populace with a bachelor's degree or higher. The differences in the national versus state trends will be presented, along with data on enrollment since COVID-19. Enrollment in colleges across the nation has declined by 5% on average between Fall 2019 and Fall 2021; the long-

term implications of this is important for many reasons including building needs, faculty employment, enrollment planning and recruitment efforts.

- **Chivington N. 2022. Association Between Excessive Screen Time and Adolescent Social Skill Development**
  Screen time in the form of mobile devices, gaming consoles, computers, and televisions has been increasing over the past decades and only continues to rise with the onset of the pandemic and new forms of technology being introduced. The longitudinal study proposed here will seek to study any associations between excessive screen time and adolescent social skill development. Social skill development refers to emotional understanding (nonverbal measure) and interactive social measures (verbal). The first fifty dual-parent couples from the Dayton area to apply for the study will be given surveys through SoGoSurvey to obtain parental observations of their child's screen usage and social skills at ages four, six, and eight. Expectations are a negative association between excessive screen time and adolescent social skill development.

- **Chivington N. 2022. The Associations Between Parasocial Relationships and Mental Health**
  Large streaming and social media platforms took center stage as the new trend in recent years. This specific internet use has led to an increase in the appearance of parasocial relationships where an individual can feel so connected to a streamer that they assume they have a relationship of some kind. The individuals that become popular on these platforms often do so by trying to deeply connect with their audience. They often divulge information on all their daily activities, interacting with friends and family on stream. Anyone in the audience can also send messages or donate money to be able to interact more directly with their streamer of choice. A parasocial relationship can be fostered and grown in this environment. Throughout this literature review several content creation/streaming platforms will be considered. The positive and negative associations relating to these parasocial relationships will be explored.

- **Cline D, Shell R, Cheshire J, Fuelling L, Ciampaglio C. 2022. Marine Vertebrate Biostratigraphy of the Conemaugh Group (Carboniferous: Kasimovian to Gzhelian).**
  The rocks of the Conemaugh Group represent a series of depositional events that occurred in the late Carboniferous Period (307.0 – 298.9 million years ago) of the

Appalachian Basin in what is today the east-central United States. In Ohio, this group consists of alternating terrestrial and marine sedimentary rocks that were deposited during periods of climate-dominated sea level change. While vertebrate fossils are known from these rocks, the responses of vertebrate communities over this rapidly changing interval are not thoroughly understood. Using a combination of field techniques and literature review, we analyzed an interval of 7 marine transgressions and plotted the occurrences of marine vertebrates (mostly chondrichthyans) to establish a sense of community change during this environmentally turbulent interval of time. It appears that marine vertebrates during these transgressions and regressions did not change appreciably in community composition until the deposition of the youngest marine unit in the Appalachian Basin, the Skelley Limestone, where a number of genera (Helodus, Diablodontus, and Microklomax) appear for the first time in the Conemaugh. Despite this, many ubiquitous late Carboniferous taxa (Lissodus, Deltodus, and Denaea) appear to have persisted across numerous sea level changes. The mechanism behind this persistence may have been taxon-specific and could have included diadromy, generalist diet, and estuarine specializations. While the degree of faunal overturn across the entire studied interval appears low, it is not clear whether the new occurrences observed in the Skelley relate to speciation, colonization, or taphonomic biases.

- **Counts J, Hardin S, Toller L. 2022. Latino American Culture.**
  Latinos are the fastest growing minority group in the U.S. population. Understanding their cultural values, family lifestyle, and common healthcare disparities are the first steps toward providing culturally competent care to this growing population. This presentation will focus on ethnogenetic considerations, fertility, socialization, and gender roles in Latino American culture. Nursing considerations will be discussed, as well as addressing health care disparities and influential societal issues.

- **Daniel D. 2022. Problems in the Bibliography of the Renaissance Man called Paracelsus (1493/4-1541).**
  Paraceslsus (1493/94-1541) was a veritable Renaissance man. Born Theophrastus Bombast von Hohenheim, the Swiss-German physician, natural philosopher, and theologian wrote prolifically across many disciplines. His corpus of at least twenty volumes treated topics such as chemical pharmaceutics, astronomy and astrology, alchemy and matter theory, nymphs and other creatures of folklore, magic and the powers of imagination, the Bible and Christianity, ghosts and angels, epistemology,

human nature, toleration, and many other topics. Here I am summing up the topical breadth and categorization of his bibliography per my forthcoming article on his works in the Oxford Bibliographies. The separation of topics and disciplines in the Early Modern Period presents unique problems, for modern types of specialization—with its vast array of disciplines—did not yet exist.

- **Deal S. 2022. The Development of an Adolescent and their Pornography Consumption**
  The proposed study investigates the effect of pornography usage on an adolescent as they grow and develop. As technology becomes more mainstream watching pornography or pornographic material also becomes more popularized and so it is important to see how viewing this material will affect those watching it in the long run. Concerns with body imaging, self-esteem, and healthy functioning sex lives are all at risk when adults watched pornography as adolescents. College aged adults, varying in gender, race, sex, and sexual orientation, will be asked a series of questions to better understand how pornography has affected them. The point of this study is to look at the relationship between these concepts and to better understand how pornography is affecting the development of people.

- **Dodds J. 2022. Effect of location on bird feeder species.**
  Different studies have been done on birds like how predators affect birds approaching the bird feeder and how different types of seeds attract different kinds of birds. The purpose of my project is to observe birds' behaviors in different locations and see how the location affects the types of birds that appear and how often they appear. Different authors have found different aspects of bird behavior. Dhillon found that most birds prefer sunflower seeds, but this often depends on the size of the bird. Gruber found that birds that live in woodland habitats don't prefer any kinds of noises, these noises scare them off from the bird feeder. For my project, I went out three times a week in three different locations around 5 p.m. for 30 minutes and observed any birds that were in the trees or ground around the bird feeder or on the bird feeder. The three different locations were a wooded area, an open field area, and an area with a mix of surrounding woods and open field. I used Roger Tory Peterson's Field Guide to Birds of Eastern and Central North America to identify the birds.

- **Elshoff A, Ross R, Lup D, Mock M, and Brewster P. 2022. In patients with COVID pneumonia, how does the use and administration of convalescent plasma compared with not administering or using convalescent plasma affect patient mortality when administered in the recommended window of three days within diagnosis of COVID-19?**
  The PICOT question our group used to research was: "In patients with COVID pneumonia, how does the use and administration of convalescent plasma compared with not administering or using convalescent plasma affect patient mortality when administered in the recommended window of three days within diagnosis of COVID-19?" The world is finally starting to emerge from the grip of the COVID-19 pandemic that took the lives of many and impacted the lives of so many more; many of which are still recovering both physically and mentally. Finding an effective treatment to help fight the effects of COVID-19 and improve healing time is a vital part of recovery as well as the overall fight against the virus. But research has shown that while convalescent plasma had some positive effects, many of them were underwhelming, and instead other modes of treatment are favored.

- **Fisher B, Speelman A, Cisco S, Grant P. 2022. In women less than 40 years of age, how does the use of hormonal birth control increase the risk for thrombosis compared to not using hormonal birth control?**
  The PICOT question our group used to research was: "In women less than 40 years of age, how does the use of hormonal birth control increase the risk for thrombosis compared to not using hormonal birth control?" Hormonal birth control is a very common form of contractive used widely by women throughout the United States. However, many are not informed of the serious risk factors associated with it, one including thrombosis. Personal characteristics and various medical conditions further increase their risk of thrombosis. It is essential for women to be educated on these adverse reactions so they can make an informed decision on their choice of taking hormonal birth control.

- **Follo G, Huelskamp D, Marshall MM, Bettinger M, Jaqueth A. 2022. Lake Campus Retention Initiative.**
  Student retention is key in post-secondary education as it leads to degree completion and supports enrollment growth over time. Previous research has shown that students are less likely to drop out if they have a sense of belonging along with the sense that they know what it will take to succeed. In an effort to increase student retention, the faculty

retention team was formed to provide such contact with students. The purpose of our faculty retention team is to explore ways to increase student retention at Lake Campus through a variety of initiatives and data mining. Starting in the Fall of 2021, we have reached out to mostly freshmen students to provide them with skills necessary to succeed in college and develop connections with peers and university personnel. Contact events included a series of three in-person workshops over the course of a semester and concluded with an exit survey to gauge impact of the workshops as well as collect student demographic data. Content included in the workshops was designed to go beyond what an individual Instructor or Professor may require in their class, such as general university requirements, etiquette, and how to navigate through their college career.

- **Fulks M. 2022. Kids These Days!**
  They are challenging, noisy, rowdy, and difficult. They are also kind, curious, creative, and hilarious. ***All in one class period.***
  Teachers can succeed and enjoy middle school students if they employ certain key strategies with the right attitude and approach.
  Armed with a generous scholarship from the Lake Campus Student Centered Research Mini Grant, six Middle Childhood Education preservice teachers, along with their instructor, were able to attend and present an exciting look inside the minds of middle school kids at the annual state Ohio Middle Level Association Conference, Innovate, 2021.

- **Gaerke B, Sinning M, Homan C, Kahlig L. 2022. In infants what is the effect of breastfed nutrition in comparison to bottle feed supplementation on infant mortality and morbidity?**
  The PICOT question our group used to research was: "In infants what is the effect of breastfed nutrition in comparison to bottle feed supplementation on infant mortality and morbidity?" Breastfeeding offers various other nutritional needs that support infants' immune systems compared to formula supplementation. It has been shown to decrease infant morbidity and mortality through numerous studies. This is an essential topic to cover with not only first-time mothers but with multipara women also since this subject is not taught enough. From the information given, the mother can then decide the superior form of nutrition for their infant's health.

- **Gangwer G, Rammel G, Hamilton M, Duncan J, Livingston J. 2022. A Comparison of Bacterial Contamination on Three Types of Masks**

  During the Covid-19 pandemic, many institutions including universities and colleges have made it mandatory to wear masks in buildings. Based on this guideline, students are required to wear masks for several hours throughout the day. This could create a health hazard and a source of potential infection. In this experiment, three different unused masks (cloth mask, N95, and surgical mask) were worn for 1 hour by three students and then swabbed to compare the number of bacterial colonies on each mask. Bacteria on the swabs were transferred to nutrient agar and incubated at 37°C for 48 hours. After incubation, bacteria colonies on all masks were too numerous to count (TNTC). The surgical mask had the most bacterial colonies, followed by the N95 mask, and then the cloth mask. Bacteria colonies on the cloth mask had a larger diameter than those on the N95 masks. This result indicates the need to change masks regularly during the day to avoid buildup of bacteria that could cause infection.

- **Griesdaorn L, Koeper E, Mullins E, Teeters K. 2022. Germs on Cellular Phones Compared to Public Toilet Seats**

  College students use their cell phones a lot. Since the hand is a major source of bacteria, one would expect that cell phones are highly contaminated with bacteria. However, how does the bacteria population on cell phones compare to public toilet seats? In this experiment, it was hypothesized that cell phone surfaces have more bacteria than public toilet seats. To test this hypothesis, Q-tips were used to swab four cell phones and four toilet seats in a female public restroom. The collected bacteria were then transferred to a Petri dish containing nutrient, agar and incubated at 37°C for 48 hours. The results showed that the average number of bacterial colonies on the cell phones was 24 compared to 154 on toilet seats. This outcome disputed our hypothesis. Public toilet seats were more than six times contaminated than cell phones.

- **Haller A. 2022. Psilocybin's Effect on Treatment-Resistant Depression.**

  Psilocybin, a chemical compound found in psychedelic mushrooms, has been cast in a negative light in the United States since the 1960's. However, the paradigm has recently shifted to understand that psilocybin may be more than a party drug. Multiple studies show evidence that psilocybin can reduce the effects of depression, anxiety, and OCD. This poster will examine these various effects, ranging from its neurological impacts to the effect on a participants self-reported experience. The current literature review will also

synthesize the research on psilocybin and its treatment for depression. This is important since some variations of depression do not have a treatment that works for everyone. For some people, psilocybin appears to be a promising treatment for depression, but more studies need to be done to understand the full effects. Furthering our understanding will allow us to fully examine the risks, benefits, and uses of psilocybin in medicine.

- **Hauter M. 2022. Social Anxiety Effects on Cell Phone Use**
  Social anxiety is a common disorder that usually starts in the adolescent years. The proposed study will be conducted to examine if middle and high school students' social anxiety is associated with their cell phone usage. During the first week of the school year, a researcher will come into schools, talk to each grade level, and hand out permission slips or surveys to students of age. This study would like to see a minimum of two hundred students between the ages of 10 and 19 take part in this survey, which will ask various questions regarding their age, gender, ethnicity, social anxiety level, and cell phone usage. The expected outcome of this study would be that participants with social anxiety will have an increased usage of their cell phones.

- **Heinrichs B. 2022. Preparation of Fossils to be Identified.**
  A bone bed can be simply defined as a stratum that contains a multitude of vertebrate remains. In specifics the bone bed analyzed in this study is from the Leitchfield formation from the Mississippian 299 million years ago. At the time the area was covered by a sea and the bone bed should be dominated by aquatic fauna. For analysis the actual collected pieces of the bone bed were submerged in 10% formic acid. The rock is then dissolved. Then the remains are put through a civ and collected together and organized based on size. The fossils will then be identified if possible.

- **Jacquemin SJ, Zehringer M, Kline K. 2022. Restored Wetlands and Grand Lake St. Mary's Watershed.**
  Wetlands are essential components of healthy ecosystems as they provide innumerable benefits ranging from improving surface water quality by sequestering nutrients and toxins to charging groundwater, providing recreational opportunities for the public, and serving as valuable wildlife habitat. Prior to European settlement, Grand Lake St Marys watershed was estimated to have approximately 30+% of its area as wetlands – however, as a result of development that number fell to well below 0.5% of the total land area. As a result of land use changes in the watershed, GLSM has experienced tremendous declines

in water quality over the past century – leading to a distinct need to restore some of these natural areas in the watershed as part of an effort to improve water quality and the environment. Thus, over the past decade numerous wetlands have been restored with more restorations in the planning stages. The objective of this project was to provide baseline information relating to how effective wetlands are at improving water quality. The data covers monitoring from the 2021 calendar year and outlines tremendous improvements in flow reduction as well as nutrient (nitrogen and phosphorus) and sediment mitigation resultant of the restoration of several wetlands. In general, around 5% of the total annual loading was reduced by several wetlands that each totaled well below 1% of the watershed area indicating the potential for expansion and improvement on a large scale here in GLSM and beyond.

- **Jaqueth AL, Marshall MM, Albers DR, Besecker JB, Heitkamp BD, Luthman KS, and Ciampaglio CN. 2022. Evaluation of Commercially Available Nozzles for Design and Construction of a Rainfall Simulator as Part of a Senior Capstone Engineering Project**
  Rainfall is a key abiotic factor of ecosystems that can both provide benefits and contribute to negative environmental impacts. Due to heavy spring rainfalls increasing in the Midwest, there has been increased interest in developing and evaluating practices which can mitigate the effects of heavy rainfall. Rainfall simulators can be useful in this evaluation as they can simulate natural rainfall while decreasing variability compared to utilizing natural rainfall events. In the Fall of 2022, four senior engineering students enrolled in a Capstone course were tasked with designing a rainfall simulator to be utilized in both indoor and outdoor settings. In the early stages of development, four commercially available nozzles were identified and evaluated to determine suitability for inclusion in the final design. Tests were conducted to measure flow rate, rain droplet size, and uniformity of water dispersion. No statistical differences were observed for flow rate, but one statistical difference was found for pellet size distribution produced by the Fan Spray Nozzle. This difference was a greater quantity of raindrops over 2 mm and was a result of pooling of water which is suspected to be due to inadequate water pressure for that specific nozzle. For the final design, the U8F nozzle was selected due to its ability to produce rain droplets that fall within ranges observed in natural rainfall and producing the most uniform dispersion estimated by Christianson Coefficient.

- **Johnson H. 2022. Timeouts: An Outdated Form of Discipline.**
  Timeouts are a form of discipline that has become increasingly popular because it does not cause physical harm toward the child. The proposed study will be conducted to measure the correlation between the duration of timeouts and communication skills of students throughout development. To measure these variables, a longitudinal correlational study will be used. A group of 25 to 30 kindergarten students will be observed within a classroom until they graduate high school, ranging from 5 to 18 years of age. After 7th grade the students and the caregivers will receive a survey each year up to graduation to rate the students' ability to communicate in different situations and how they would respond to their peers and adults. The proposed study expects to find students who spend more time in timeout will have more difficulty communicating throughout development.

- **Klint, T. 2022. Effects of Food Additives on Foodborne Bacterial Pathogens**
  Foodborne bacterial infections are still of medical significance even in western developed nations. Efforts are constantly being undertaken to reduce the risk of food poisoning for the general public. A more common concern around food products today however is not food poisoning, but the general unhealthiness of many foods. Multiple studies have indicated that many common food additives – such as sugar – have been linked to health concerns like obesity and diabetes. This has led to calls by some health professionals and government agencies to reduce the intake of these unhealthy additives. In this study the capacity for growth of three foodborne pathogens (Salmonella enterica, Campylobacter jejuni, and Listeria monocytogenes) were investigated when exposed to common food additives. Salt, sugar, and artificial food coloring served as the food additives that were tested on each bacterium. The purpose of the study is to determine if the food supply could be compromised should food manufactures, either by consumer demand or by government regulation, stop using food additives in their products.

- **Luthman B, Mercer G, Bishop M, Stetler S. 2022. Within the adolescent population, how does increased exposure to social media during teenage years impact the development of mental illnesses?**
  The PICOT question our group used to research was: "Within the adolescent population, how does increased exposure to social media during teenage years impact the development of mental illnesses?" Social media has become indispensable to the adolescent population, and it plays an ineradicable role in everyday life. With the

inevitable continuation, there is minimal insight into potential mental health consequences from social media exposure. Adolescents are the focus of said question since they are the age group that participates actively and regularly. They are also still developing psychologically with the world, and there is a chasm of unknown influence regarding social media and its effects on mental health.

- **Marshall MM, Jacquemin SJ, and Jaqueth AL. 2022. Using novel isotopic methods to differentiate among agricultural inorganic phosphate sources and seek patterns of addition within the Grand Lake St. Mary's watershed.**
  Algal blooms in Grand Lake St. Mary's are dependent upon nutrients provided by streams within its highly agricultural watershed. To develop more accurate methods of defining which of these waterways is the largest contributor, this study is being conducted using $\delta^{18}O$ of phosphate molecules. Here, we will collect manure samples from five separate farms from three different types of livestock operations for oxygen isotope analysis. These results will be used to compare mean isotope ratios among manure types to determine the effectiveness of this novel method in distinguishing specific livestock-related sources of inorganic phosphorus entering the watersheds draining into Grand Lake St. Mary's. Once we have established a baseline for manure signal we will concatenate those with existing signal data from commercial chemical fertilizers to create a full suite of comparative data. Our goal is to collect stream samples from 6 locations along Chickasaw Creek (samples will be collected from sites in close proximity to each other ~2km) at 4 times throughout the year (winter, spring, summer, fall), to observe both temporal and spatial patterns among isotope ratios. This sampling must occur during high stream flow conditions and has been completed for Fall 2021 and Winter 2021-22. Both stream and manure samples are currently undergoing lab analysis with final data expected later this year.

- **Muether G. 2022. Dietary Preferences of Ohio Squirrels.**
  Few studies on the dietary preferences of squirrels native to Ohio, provided an artificial food selection, have been conducted. Celina, Ohio has 2 common squirrel species (Gray, Fox) of the 4 in Ohio (Gray, Fox, Flying, and Red). Several studies have been conducted into what squirrels prefer in their natural habitats. This study aims to establish a statistical preference/aversion towards assorted nuts not native to Ohio. Six different nut varieties were displayed in buffet style in three locations of Celina, Ohio. Data was recorded via trail-camera; the footage was inspected every 2-3 days. This study was

conducted over a 4-week period (2/1/2022 - 3/15/2022). This study fills in an under researched gap in the literature. In addition, these findings can be implemented by individuals across Celina who wish to feed squirrels as a pass time.

- **Payne M. 2022. Social Media and how it's Affecting our Adolescent's Mental Health and Body Image**
  In the past ten years social media has become more prevalent in day to day life, especially with adolescents. The proposed study will be conducted to examine if social media has a negative affect on teens mental health and body image. 100 students from a local high school will be given a survey sent home with questions pertaining to social media, mental health, and body image. Before the students complete this survey, parents will be sent home a permission form for their children to participate. The survey will contain questions like: How much time do you spend on social media daily? Does social media influence how you eat? How often do you diet? etc. Data collected from the survey will be analyzed. Expected results should show strong positive correlations between social media use with body image and mental health due to the nature of social media's ideal body image.

- **Ricker J. 2022. The Effects of Social Media Use on Mental Health**
  In recent years, social media has become more prevalent in people's daily lives. From Facebook to Instagram, people are influenced everyday by the content they are exposed to on social media platforms. Previous research has shown viewing negative social media feeds causes one to feel more negative emotion immediately after. There is little difference in emotional response when viewing positive and neutral feeds. We will be using a population of approximately 50 Wright State Lake Campus students consisting of those between the ages of 18-40 years old, recruited through their psychology classes, to examine the effects of social media on affective experience. Participants will be randomly assigned into three groups. One group will view a social media page with exclusively positive content, another with negative content, and lastly one with neutral content. Before and after viewing the feed, they will take the PANAS to assess their affective experience. We will be using a one-way analysis of variance to determine if there is a significant effect on participants' emotional state. We predict there will be a negative impact on participants' mental health. The presence of technology in our society has caused people to become reliant on social media, influencing their lives. Understanding

the relationship between social media and mental health will help fill the gaps of knowledge within this area of research.

- **Scheib M., Moeller M., Sudhoff E., Barnes P., Oswalt J. 2022. American Indian Culture.**
  American Indian culture is complex and diverse and many traditions stretch back thousands of years. This presentation will focus on different elements of the American Indian culture including the history, religious beliefs, nutritional practices, socialization, aging and death, and ethnopharmacological/ ethnogenetic considerations. With this being said, this culture revolved predominantly around nature and every aspect of their lives was based around the Earth. The tribe worshipped the spirits of animals as gods but also killed them for food and clothing. They believed the spirit of the animals would live on in spirit within the tribe. Native American women were responsible for caring for the home, children, and most of the housework, while men partook in the hunting, manufacturing of weapons, and political/ religious operations. In addition to the meat harvested from the animals hunted, American Indians received nutrition from vegetables such as corn, beans, squash, wild greens, etc. A variety of nuts were also collected from the land to be eaten. Understanding each of the cultural components of various ethnic groups, promotes the best possible care for each patient in the clinical setting.

- **Senger Z. 2022. Effect of sleep deprivation on electrolyte levels.**
  Electrolytes are arguably one of the most important factors of body and are vital to how the body functions, most notably by regulating chemicals in the body, as well as maintain the balance of fluids inside and outside of your cells. When electrolytes such as potassium, chloride, sodium, bicarbonate, phosphate, or calcium fluctuate out of their ordinary, healthy ranges, they pose possible danger to an individual's health, with signs and symptoms such as cardiac arrhythmias, hypertension, diabetes, heart failure, COPD, decreased immune activity, and even death. Currently, 35% of people in the United States are averaging under the recommended seven hours of sleep every night, with expectations for this percentage to increase in trend as years pass (CDC, 2017). With sleep deprivation, the levels of electrolytes may fluctuate into dangerous levels to put an individual in possible harm or make them a candidate for life-altering health defects. The following study was conducted to compare the electrolyte levels of a small sample of participants who received less than the recommended number of seven hours of sleep per night to the average healthy range for electrolyte levels. Each participant recorded their

sleep schedules daily and supplied blood samples every week to undergo electrolyte panels from a lab. It is expected that the ranges of any suffering from sleep deprivation on a normal basis will have extremely abnormal electrolyte imbalances. This research provides evidence backing the suggestion that electrolyte levels should be more focused on and studied to provide a prophylactic treatment plan for expected decreases in health, especially in the case of shift workers. It also supports the exploration of hyper focusing on shift workers, primarily night shift, that are leaving work as the sun is out and ultimately offsets their circadian rhythm. This offset may or may not lead to a larger imbalance of electrolyte levels and should be observed more closely.

- **Shaffer D. 2022. The Toll of Social Media on Adolescence.**
  Social media is a staple among young people. It allows for people to promote things and keep in touch with friends and family. Social media can also bring negative aspects such as cyber bullying, inappropriate content, and a decline in mental health. This study aims to examine the affect that time spent on social media has on the mental wellbeing of adolescents. One hundred volunteer high school adolescents between the ages of 15 and 18 years old will be given surveys that ask about how much time they spend on social media, the type of content they are exposed to, and the state of their mental wellbeing. Students that participate in the study will be offered extra credit in their English classes. It is expected that participants who spend a greater amount of time on social media will perceive more of a decline in their mental well-being.

- **Siebeneck S, Westgerdes J, Ontrop D, Sheipline A, and Klenke, B. 2022. Restroom Sink Handles Have More Bacteria Than Toilet Handles**
  Restrooms can be a major source of bacterial pathogens which could cause infection and illness via the fecal oral route. Primary fomites in restrooms include handles of toilets, sinks, and doors. In this experiment, two surfaces- sink handles and toilet handless, were swabbed in male and female restrooms to compare bacteria load. The swabs were transferred to nutrient agar plates. The plates were incubated at 37°C for 48 hours. Results indicated that the sink and toilet handles in the female bathrooms had significantly more bacterial colonies compared to the male restrooms; and that in both restrooms, there were significantly more bacterial colonies on the sink handles compared to the toilet handles.

- **Siefring T, Paul B, Barnes M. 2022. In newborn infants, how does skin-to-skin contact directly after birth with mom for an extended period of time, longer than 20 minutes promote breastfeeding, compared to newborn infants who don't receive skin-to-skin contact with mom long than 20 minutes directly after birth?**
  The PICOT question our group used to research was: "In newborn infants, how does skin-to-skin contact directly after birth with mom for an extended period of time, longer than 20 minutes promote breastfeeding, compared to newborn infants who don't receive skin-to-skin contact with mom long than 20 minutes directly after birth?" Information found urges health care workers to use skin-to-skin contact within the first hour after birth to improve the health of the newborn and the mother. Depending on the health of the infant and hospital policies, along with a mother's personal beliefs, a lot of this immediate mother and baby bonding time is cut short for testing and treatment. Research has shown that if we can increase the amount of time the pair spend together, breastfeeding and overall health of both parties will benefit greatly.

- **Simons C. 2022. Effect of Cigarette Smoking on Toxic Waste Buildup in Simulated Lung.**
  The most common type of cancer in the US is lung cancer. Tobacco smoking is the main cause of this type of cancer. Tobacco smoke is a complex mixture of many chemicals of which at least 60 are known carcinogens. Carcinogens in tobacco cause cancer by changing the structure of the DNA, causing errors in the DNA during replication, silencing tumor-suppressing genes, and activating oncogenes. The most important carcinogens in tobacco are polycyclic aromatic hydrocarbons (PAHs), N-nitrosamines, aromatic amines, 1,3-butadiene, benzene, aldehydes, and ethylene oxide because of their carcinogenic potency and levels in cigarette smoke. Habitual smoking results in a build-up of toxins including sticky tar that turns the lung black. In this experiment, the effect of cigarette smoking on toxic waste buildup in the lungs was determined using a smoking simulator. The simulator compared the effect on the lung if a person smoked ¼ pack of cigarettes per day for 7 days (35 cigarettes), ½ pack per day for 7 days (70 cigarettes), 1 pack per day for 7 days (140 cigarettes), or 2 packs per day for 7 days (280 cigarettes). The results showed a significant increase in toxic waste residue buildup as the number of cigarettes smoked increased.

- **Simons C. 2022. Food Waste Contains Antibacterial Properties**
  Thirty to forty percent of the food supply in the US is wasted. This has resulted in many environmental challenges including greenhouse gasses. In fact, food waste is the single-most common material in landfills. Given the ever-increasing problem, the EPA, USDA and FDA are collaborating to engage more communities, organizations and businesses to reduce food waste by 50% by 2030. One way to achieve reduction of food waste is to find alternative uses for them. In this biology class experiment, the antibacterial property of various food wastes was explored. Bioactive compounds from six food waste materials (avocado seed, avocado peel, onion peel, banana peel, beet greens, and cantaloupe peel) were extracted after dehydration and milling. Extraction was done by homogenizing the dehydrated powders at high speed (1100 rpm) in 70% for 5 minutes. Antibacterial activity test was then done using a disc diffusion protocol (n=10). The microbes used in the study was grown from a hand swab. Results showed significant difference in antimicrobial property among extracts; with avocado and onion peel having the highest antimicrobial activity. Our findings suggest a potential for the commercial use of food waste extract as antimicrobial agents against skin bacteria.

- **Simons C. 2022. Just Sanitizing Your Hands Can Be More Effective than Washing Them.**
  Proper hand hygiene is a very effective method to reduce the risk of contracting infectious diseases caused by bacteria, viruses, and other pathogens. The CDC recommends that we wash our hands for 20 seconds to prevent the spread of germs including coronavirus during the current pandemic. How effective is this proposed method in controlling bacteria? In this study, two groups of BIO 1070 – Health and Disease students evaluated the effectiveness of handwashing in killing bacteria compared to just sanitizing without a handwashing step. To wash their hands, students applied liquid Palmolive soap and followed the wet, lather, scrub, rinse, and dry method prescribed by the CDC. To sanitize hands, students applied excess sanitizer (79% isopropyl alcohol) to the front and back of both hands from the wrist to the fingertips and then allowed them to air dry. On average, bacteria colony numbers increased by 8% after handwashing while there was a mean 63% decrease after sanitizing. These results suggest that if your hands are relatively soil-free (i.e., free from visible dirt, fecal matter, grease, etc.) it is better to sanitize them than to wash them for 20 seconds. People (especially those providing medical care or handling food) who must wash their hands to

remove soil as the first step in hand hygiene, should consider sanitizing their hands afterward.

- **Simons C. 2022. People with Greater Muscle Strength Have A Faster Reaction Time**

  A person's response time indicates the brain's ability to detect, process, and react to stimuli. People with slow reaction time have higher risk of mortality. One way in which reaction time can be improved is by regular exercise. Regular exercise is known to improve physical endurance and strength. We hypothesize that a person with greater muscle strength will have a faster reaction time. Therefore, in this study ten first-year undergraduate biology students measured their reaction time using a ruler drop test and their grip strength using a dynamometer. Data collected revealed that the dominant hand had a faster reaction time and was also significantly stronger than the non-dominant hand. Overall, our findings confirmed a negative correlation between grip strength and reaction time. Therefore, an effective way that could improve a person's neural processing speed is by strength-training exercise.

- **Simons C. 2022. Self-Reported Cardiovascular Fitness of a Population of Undergraduate Students.**

  Heart disease is the number one cause of death in the United States. Among a few other factors such as high cholesterol, diabetes, smoking, and stress, high blood pressure; elevated resting heart rate, and obesity play a key role. In this study, 25 students in an undergraduate biology class with ages ranging from age 18 to 40 measured and self-reported their resting heart rate, blood pressure (before and after exercise), height, weight, and body mass index (BMI). Overall, students classified their habitual exercise activity as "low". The mean resting heart rate was 82 (normal). Mean blood pressure was slightly elevated at 122/77 (pre-hypertension). Mean BMI was 28 lb/in2 which fell in the overweight category. The data presented did not show any correlation between resting heart rate, blood pressure, and BMI. However, the data clearly revealed that students with lower resting heart rate had a lower percentage increase in heart rate after a 10-minute aerobic exercise compared with those with a higher resting heart rate. This means that people who are fitter take a longer time to reach their maximum heart rate compared to those who are not fit. The data also revealed that body weight is a good predictor of BMI while height is a poor predictor of BMI.

- **Speck C. 2022. Successful Group Counseling Sessions.**
  The issues and problems that adolescents face can be addressed through group or individual therapy. The proposed research will examine the effectiveness of group therapy in comparison with individual therapy with low anxiety students. The study will be conducted using a repeated design measure which will test low anxiety students. Which will be placed in two different settings. The population of interest is high school students aged 17 and 18 with low anxiety. Participants with severe anxiety will not be used in the research and given the help they need. Surveys will be used to determine which participants have low anxiety levels. The students will get split into two groups according to how low their anxiety is. Students in the groups will begiven the same survey from the beginning which will explain how they feel after receiving therapy. Participants will be given advice on how to handle their anxiety.

- **Stammen S., Jones M., Bebout B., Franck A. 2022. Amish Culture.**
  The Amish culture is a group of religious individuals, that believe in strong practice of skills involving their self-expression, religious practices, and technology use. The Amish culture has been in the United States for a longtime, originating from Europe and coming here in the 18th century, settling in Pennsylvania. They first settled in search of land to farm and to escape religious prosecution. Amish people have a unique lifestyle which can influence lifestyle complications or even disease. In this presentation we will provide information on socialization, having children, childbearing practices, adolescence, puberty, gender roles and responsibilities, marital expectations, communication patterns between genders, spirituality, and ethnopharmacology and ethnogenetic considerations.

- **Thomas R, Clayton A. 2022. The Effects of Electrical Stimulation on Hericium Erinaceus Growth.**
  Thunderstorms are good luck and can promote mushroom growth, according to Japanese folklore. New research has supported these claims and found that the crop yield of certain fungi species can more than double in size after being exposed to lightning strikes (Ryall). The proposed study will examine Hericium Erinaceus, a fungus commonly found in the local area, to see if electrical stimulation can affect growth rate. The research will be conducted using eight at-home cultivation kits fully colonized with Hericium Erinaceus, also known as Lions Mane, mycelium. Four of these kits will be exposed to electrical stimulation once per day. Electrical stimulation will be administered using a TENS (transcutaneous electrical nerve stimulation) Unit at

maximum levels for 20 minutes daily. Given the results of research studies that used artificial lightning to stimulate fungi growth, I am hopeful that the results of this proposed study will show a positive relationship between exposure to electrical stimulation and Hericium Erinaceus growth.

- **Wendel MJ. 2022. Can Bone Beds Form in Grand Lake St. Mary's?**
  Grand Lake St. Marys located in Midwest Ohio has been subjected to intensive water quality research in the last decade due to its hyper eutrophication. As nutrients accumulate in the shallow, slow-moving reservoir, cyanobacteria absorb sunlight and proliferate. As a result, Grand Lake experiences seasonal algal blooms that affect the ecosystem. In summer 2020, a massive algal bloom depleted the water column of dissolved oxygen. Fish of numerous species died en masse, and carcasses were transported by water currents. This study aims to observe the deposition of fish remains from several shore locations and examine the conditions under which the bones accumulated. Such a catastrophic event in a concentrated area can lead to the formation of bone bed, a geographical area with highly concentrated organic remains within sediment.

- **Wendel S, Clayton A. 2022. Drinking Water Quality in GLSM Region.**
  Healthy drinking water is an important part of having a healthy body and healthy mind. I seek to understand the health of our wells in this area. I tested 4 wells around the perimeter of the lake, from the same aquifer and my city water for comparison of the presence of nitrates, the pH, and the total dissolved salts/ions. Nitrates are a chemical product found within different types of fertilizers, septic waste discharge, and manures (Wisconsin 2019). Water and soil conservationists in the area have been informing citizens in the Mercer/Auglaize County area for years that runoff and waste dumping from farms destroyed the lake biome.

- **Wilson D. 2022. Alfred Bester's the Stars my Destination: A Critical Companion.**
  In this comprehensive study of The Stars My Destination, D. Harlan Wilson makes a case for the continued significance of Alfred Bester's SF masterwork, exploring its distinctive style, influences, intertextuality, affect, and innovation as well as its extensive metafictional properties. In Stars, Bester established himself as a son of the pulp-SF and high-modernist writers that preceded him and a forefather to the New Wave and cyber - punk movements that followed his lead. Wilson's study depicts Bester as an SF insider as

much as an outlier, writing in the spirit of the genre but breaking with the fixation on hard science in favor of psychological interiority, literary experimentation, and adult themes. The book combines close-readings of the novel with broader concerns about contemporary media, technocul - ture, and the current state of SF itself. In Wilson's view, SF is a moribund artform, and Stars foresaw the inevitable science fictionalization of our benighted world. With scholarly lucidity and precision, Wilson shows us that Stars pointed the way to what we have (un)become.

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