



**BAPTIST HEALTH
SCIENCES UNIVERSITY**

BAPTIST UNIVERSITY COLLEGE OF OSTEOPATHIC MEDICINE

RESEARCH FACULTY PORTFOLIO

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BIOMEDICAL SCIENCES

Michelle Alexander, Ph.D.

General Education

Dr. Alexander is currently interested in exploring the topics of increased cardiovascular disease risk in postmenopausal African American women and the healthcare disparities among this population.

Keywords: Hypertension, myocardial infarction, stroke, vitamin D deficiency.

Abbes Belkhiri, Ph.D.

BUCOM

Dr. Belkhiri's research program focuses on mechanistic studies on tumorigenesis and resistance to various cancer therapies in upper gastrointestinal malignancies (gastroesophageal tumors). His translational research involves repurposing known drugs and developing novel biomarkers for cancer treatment.

Keywords: Gastroesophageal cancers, receptor tyrosine kinases, chemotherapy, targeted therapy, immunotherapy, tumorigenesis, drug resistance, hallmarks of cancer, apoptosis and senescence, tumor growth and proliferation, and autophagy.

Troy Camarata, Ph.D.

BUCOM

The Camarata lab is focused on understanding the maintenance of kidney progenitor cells. Current projects are aimed to determine why metanephric kidney progenitor cells are maintained throughout life in reptiles but become depleted before birth in mammals. Experimental approaches include genome methylation studies, single-cell RNA sequencing, differential gene expression studies, and tissue dissection for molecular analysis. In addition to bench research, Dr. Camarata has active medical education projects studying metacognition and self-directed learning.

Keywords: Kidney development, organogenesis, cell biology, molecular biology, gene regulation.

Christina Davis, Ph.D.

BUCOM

Dr. Davis is primarily interested in cancer, endocrine, and immunology research, and would like to gain more knowledge in clinical research and education research.

Keywords: Cancer, immunotherapy, chemotherapy, tyrosine kinase inhibitors, selective estrogen/androgen receptor modulators.

Yahia Hamada, Ph.D.

General Education

Dr. Hamada's research focuses on the roles of metal ions in biological systems, particularly iron, copper, and zinc. He is also interested in the toxicity of metal ions, with an emphasis on lead, cadmium, and mercury. His work includes designing low-molecular-weight metal ion chelators for use in chelation therapy to aid in aluminum detoxification and address neurodegenerative diseases.

Keywords: Bio-inorganic chemistry, metal ions, neurodegenerative diseases, mammalian iron proteins, non-transferrin iron binding molecules, zinc in mammalian brains, copper proteins, chelation therapy, metal ion toxicity, low molecular weight biomolecules.

Michael O. Ibiwoye, M.D., M.S., DTM&H, M.P.H., Ph.D.

BUCOM

Dr. Ibiwoye's research focuses on the pathologic basis of human disease, particularly demyelinating central nervous system (CNS) disorders such as multiple sclerosis (MS) and the neurotoxic effects of

environmental pollutants. His work investigates the role of oligodendrocyte progenitor cells and vascular endothelial antigens in MS progression, as well as the impact of chronic cadmium exposure on brain development and blood-brain barrier integrity. His research aims to advance understanding of disease mechanisms and inform potential therapeutic strategies.

Keywords: Neurobiology of disease, oligodendrocyte progenitor cells, blood-brain barrier, multiple sclerosis, neurotoxicology, environmental pollutants.

Annesha King, Ph.D.

BUCOM

Dr. King is interested in the role of epigenetic mechanisms in Huntington's disease, particularly heterochromatin dynamics involving HP1 isoforms. She is actively exploring other potential non-bench avenues of scholarly contribution.

Keywords: Huntington's disease, heterochromatin dynamics, HP1 isoforms, epigenetics.

Roy Koushik, Ph.D.

General Education

Dr. Koushik is not currently active in research but has extensive prior experience in several areas. His previous work includes studying the regulation of ion-transporting enzymes by regulatory proteins and protein kinases, investigating intracellular protein trafficking of GLUT4 and CFTR, and identifying and characterizing virulence factors in enterotoxigenic *E. coli* as part of vaccine development efforts.

Keywords: Protein purification from tissue extracts, biochemical and immunological characterization of proteins, cloning and protein expression in bacteria, visualization of proteins using confocal and electron microscopes.

Michelle McDonald, Ph.D.

BUCOM

Dr. McDonald is interested in pathophysiology, stroke, neglected tropical diseases (NTDs), infectious diseases, chronic diseases, and healthcare disparities. Although she is not currently engaged in active research, she is happy to mentor students on developing research ideas and projects.

Keywords: Cerebrovascular disease, cardiomyopathy, neglected tropical diseases, insect-vector disease transmission.

Pandurangan Ramaraj, Ph.D.

BUCOM

Dr. Ramaraj's research focuses on melanoma and the development of therapeutic cocktails designed to target and eliminate human melanoma cells in vitro. He is currently investigating their efficacy across additional cancer cell lines to explore broader therapeutic applications. With extensive experience mentoring medical and graduate students, he actively involves trainees in cancer research, fostering scientific inquiry and skill development. Over his career, he has authored multiple book chapters and research articles in international journals and has presented his findings at national and international scientific conferences. His work aims to advance cancer treatment strategies through innovative research and interdisciplinary collaboration.

Keywords: Melanoma, cancer therapeutics, in vitro studies, cancer cell lines, targeted therapy, oncology research, drug development, biomedical sciences, student mentorship, experimental therapeutics, cancer treatment strategies.

Tyler Roche, Ph.D.

BUCOM

Dr. Roche is interested in the biochemistry of nucleic acids, focusing on the molecular interactions that govern nucleoside formation and nucleobase pairing in both canonical and noncanonical nucleic acids.

Keywords: RNA, DNA, self-assembly, base-pairing, molecular geometry, noncovalent interactions.

Sarah Stevens, Ph.D.

BUCOM

Dr. Stevens seeks to understand the short- and long-term effects of prenatal opioid exposure on neurodevelopment and behavior. Additional research may include anatomy-related projects.

Keywords: Opioids, addiction, withdrawal, neurodevelopment, behavior, neonatal opioid withdrawal syndrome (NOWS). Anatomy.



CLINICAL SCIENCES

Kira Anderson, M.S.

Allied Health

Dr. Anderson has interests across biomedical sciences, clinical sciences and practice, education, and public/population health. In biomedical and clinical sciences, she focuses on therapeutic interventions for acute and chronic pulmonary disease, particularly ventilator-induced lung injury. Her public health interests include exploring health disparities among marginalized communities, and she has assisted students in conducting epidemiological studies in West Tennessee and Mississippi, examining social determinants of health. In education, she is interested in the impact of interprofessional education (IPE) on the development of health sciences students, healthcare practices, and patient outcomes, having presented at multiple conferences on its importance. Additionally, she studies the effects of diversity, equity, inclusion, and justice on student preparedness in health sciences higher education.

Keywords: Pulmonary dysfunction, chronic and acute lung disease, ventilator induced lung injury, barotrauma, volutrauma, mechanical ventilation, pulmonary diagnostics, pulmonary gas exchange

Stephen Behrman, M.D.

Baptist Memorial Hospital

Dr. Behrman is engaged in clinical and basic science investigation into benign and malignant gastrointestinal surgery.

Keywords: Pancreas, bile duct, stomach, esophagus, complications, treatment.

John Biery, D.O.

BUCOM

Dr. Biery's research interests encompass clinical medicine, clinical research, osteopathic principles and practice (OPP), osteopathic manipulative medicine (OMM), and sports/musculoskeletal medicine, with a primary focus on case reports, posters, and sponsoring student posters. His work also includes research in medical education, specifically examining OMM thinking, documentation organization, and medical decision-making.

Keywords: Musculoskeletal injury treatment, osteopathic manipulative evaluation and treatment sequencing, overuse injuries, myofascial pain and contribution to somatic dysfunction, patient-centered care, osteopathic clinical education.

Christine Hartford, M.D.

BUCOM

Dr. Hartford has done several types of research in the past, including laboratory-based, pharmacogenomics and clinical trials related to hematology-oncology. Her current interests include maternal-infant health outcomes, barriers to HPV vaccination, and strategies to improve HPV vaccination rates.

Keywords: Pediatrics

Hamidreza Hosseinpour, M.D.

Baptist Memorial Hospital

Dr. Hosseinpour is a general surgery resident at Baptist Memorial Hospital with five years of research experience prior to joining the program. As an international medical graduate, he has gained expertise in utilizing national datasets, including TQIP, NSQIP, NCDB, and NRD, to conduct impactful surgical research.

Passionate about mentoring aspiring researchers, Dr. Hosseinpour is dedicated to fostering skill development and supporting successful careers in the field. At BMH, he leverages the hospital's diverse patient population and comprehensive data systems to advance research across surgical subspecialties.

Keywords: General surgery, HPB surgery, trauma and acute care surgery, vascular surgery, cardio thoracic surgery, minimally invasive surgery.

Sai Krishna Bhogadi, M.D.

Baptist Memorial Hospital

Dr. Bhogadi focuses on clinical and outcomes research, conducting both prospective and retrospective studies to evaluate interventions and health outcomes. This work also includes large database analyses to identify trends and inform evidence-based practices, as well as utilizing animal models.

Keywords: General surgery, trauma research, surgical critical care research, traumatic brain injury.

Elley Riley, D.O.

BUCOM

Dr. Riley's interests span clinical sciences and practice, health sciences education, lifestyle medicine and preventive health, medical education, and osteopathic principles and practice.

Keywords: Preventive medicine, diabetes, vaccines, adolescent, adult, pediatric, outpatient, EMR, clinical.

Amanda Robinson, D.O.

BUCOM

Dr. Robinson investigates how osteopathic manipulative medicine (OMM) impacts mental health, the effects of ankle stability on low back pain, and best practices for promoting OMM, including the potential benefits of postural training on overall daily performance and functioning.

Keywords: Manipulation, biomechanical, functional, integrative, medicine.

Cheryl Scott, EdD

IPE and Simulation

Dr. Scott is interested in developing interprofessional education (IPE) activities that foster communication, collaboration, and teamwork among diverse student groups. These activities may be simulation-based or clinically focused to enhance students' understanding of interprofessional teams in the workplace and inspire them to become change agents. She is also interested in research involving artificial intelligence and in utilizing the ECHO Immersive Room for learning and simulation.

Keywords: Communication, team-based learning, collaboration, interprofessional teams, simulation.

Dana Wiley, M.P.H. MLS(ASCP)

Allied Health

Ms. Wiley's microbiology background spans bacteriology, virology, mycology, mycobacteriology, and parasitology, with early experience at a children's hospital. Before beginning her teaching career in January 2023, she worked PRN in the virology lab at Le Bonheur. In the 1990s, she gained hands-on molecular lab experience in one of the first diagnostic molecular labs, where she performed manual extraction, radioisotope labeling, gel electrophoresis, and Southern blotting. Her experience also includes roles in laboratory software—implementing, testing, training, and providing technical support. Returning to lab work, she specialized in PCR molecular microbiology, including SARS-CoV-2 testing, at a reference lab. Currently, she teaches courses in diagnostic microbiology, molecular diagnostics, immunology, lab management, and laboratory techniques.

Keywords: Clinical diagnostic microbiology (bacteriology, virology, mycology, mycobacteriology, parasitology), immunology/serology testing, medical laboratory sciences, molecular diagnostics, laboratory information systems.

Brian Zachariah, M.D.

BUCOM

Most of Dr. Zachariah's published work focuses on cardiac arrest management and other topics in EMS and emergency medicine. He also has interests and experience in the humanities, medical regulation, professionalism, administration, and medical education.

Keywords: Emergency medicine, cardiac arrest, professionalism and medical regulation, administration, medical education.



HEALTH SCIENCES & MEDICAL EDUCATION

Laura Baker, M.B.A., Ph.D.

Allied Health

Her primary focus is on radiologic and imaging sciences, with current research efforts aimed at developing a project on student learning and personality traits as they relate to learning in imaging sciences.

Keywords: Radiology, radiologic technology, imaging sciences, interventional radiology.

Angel Boling, Ph.D.

Nursing

Dr. Boling's interests lie in healthcare education, with a particular emphasis on interprofessional education and its impact on teamwork, communication, and patient outcomes. Her work is informed by clinical areas including emergency medicine, critical care, trauma, and burn care. She also researches the use of simulation as a teaching modality in both simulation center-based and classroom learning environments.

Keywords: Emergency medicine, critical care, trauma, burn care, cardiac arrest, professionalism and medical regulation, administration, medical education.

Ramazan Aydogdu, Ph.D.

BUCOM

Dr. Aydogdu examines the relationship between social factors, the social environment, and health outcomes, with a focus on religiosity, mental health, life satisfaction, and happiness. He primarily uses quantitative techniques to analyze survey data.

Keywords: Religiosity and mental health, sociology of health, social determinants of health.

Elizabeth (Lily) Browning, D.O.

BUCOM

Dr. Browning's research interests focus on the role of nutrition in primary care, with an emphasis on lifestyle medicine, preventive health, and family medicine.

Keywords: Religiosity and mental health, sociology of health, social determinants of health.

Christopher Church, Ph.D.

General Education

Dr. Church's collaborative research has focused on clinical and research ethics, particularly in the context of catastrophic childhood disease. He founded the ethics committee and clinical ethics consultation service at St. Jude, where he was involved for over 20 years. A sampling of her published research includes qualitative studies on factors shaping end-of-life decision-making by and for adolescents, a 10-year retrospective review of issues in ethics consultation at St. Jude Children's Research Hospital, a case report on the boundary between clinical research and therapeutic innovation, a literature review, and a review of a hospital-based clinical ethics consultation immersion experience.

Keywords: Clinical ethics, bioethics, research ethics, shared decision making, informed consent, decision-making capacity, end-of-life decision-making, surrogate decision making, adolescent decision making, child abuse and neglect.

Larissa Collier, Ph.D.

BUCOM

In social science, Dr. Collier's research examines patterns of violence in prehistoric and historic communities through bioarchaeological and archaeological evidence. She also studies community violence patterns and the impact of violence on health and development in contemporary communities. In medical education, her research covers anatomical variation and case studies, curriculum development and design, student success programs and interventions, and student perceptions of anatomical body donation.

Keywords: Medical education, anatomical case studies, anatomical variation, perceptions of human body donation, community violence and health, student success and development.

Richard Ewool, Ph.D.

General Education

The ultimate goal of Dr. Ewool's research is to harness the power of data science to enhance public health surveillance, improve health outcomes, and inform evidence-based policy decisions. By integrating cutting-edge computational techniques with public health research, he aims to contribute to a more responsive and equitable healthcare system. His work strives to bridge the gap between data and actionable health insights, ultimately leading to better health for individuals and communities.

Through collaboration with the Shelby County Health Department, Dr. Ewool develops mathematical models to help understand the spread of infectious diseases, utilizing data from various sources, with results from these models informing public health policies. He also uses geographical information systems and spatial statistics to study the geographical distribution of health events and identify hotspots of diseases and fatalities, such as those caused by drug overdoses.

Keywords: Data science, programming, scientific computing, data analysis, spatial analysis, statistics.

Mark Stutz, Ph.D.

General Education

Dr. Stutz's area of expertise is in orthopedic injury and sports medicine. His research interests include injuries and illnesses affecting the pediatric population, overuse injuries in pediatric athletes, heat illness in youth sports, concussions in youth sports, and the use of standardized patients and interprofessional education in healthcare educational programs.

Keywords: Sport specialization, overuse injuries, stress fractures, hyperthermia, exertional heat stroke, concussion management.

NURSING SCIENCES

Angie Crow, DNP

Nursing

Her primary focus is in women's and children's health.

Keywords: Prenatal, intrapartum, postpartum, well neonate, critical neonate care.

Pamela Harris, Ph.D.

Nursing

As a PhD in nursing science, Dr. Harris's research focuses on advancing the nursing field through improved, evidence-based protocols and care standards aimed at enhancing patient outcomes. Her

goal is to drive positive client results by refining nursing practices.

Keywords: ICU nursing, researching nurses' perspectives, nursing treatments, protocols.

Brett Pickens, DNP

Nursing

His interests center on quality improvement and enhancing patient outcomes, with a focus on identifying innovative methods to positively impact patient care.

Keywords: Emergency medicine, trauma, critical care.

OTHER DISCIPLINES

Hampton Hopkins, EdD

BHSU Administration: Healthcare Administration

Dr. Hopkins's scholarly interests center on the intersection of higher education, student success, diversity, equity, and inclusion, with a focus on learning and leadership. His research explores how technological advancements and evolving pedagogical practices impact access, representation, and belonging in academia. He is also interested in understanding how diverse student populations navigate learning environments, achieve success, and develop leadership skills. Dr. Hopkins is particularly passionate about identifying strategies and interventions that promote equitable outcomes and foster inclusive learning communities within higher education institutions.

Keywords: Higher education, student success, diversity, equity and inclusion, learning, leadership

Curtis Shonoski, MS.c.

BUCOM: Healthcare Administration

His interests encompass all aspects of simulation, from low to high fidelity and across various modalities, as well as standardized patient education. He has some experience in translation studies, specifically through meta-reviews, and a background in healthcare quality and safety.

Keywords: Simulation, standardized patients, technology in education, health system administration, quality improvement.