Institution: **The University of Texas at Arlington**

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Certificates, Registrations, Accreditations: AALAC, Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), CCNE (Commission on Collegiate Nursing Education), Commission on Accreditation of Athletic Training Education (CAATE) ABET, National Architectural Accrediting Board (NAAB), Planning Accreditation Board (PAB), Council for Interior Design Accreditation (CIDA), National Association of Schools of Art and Design, Landscape Architecture Accrediting Board (LAAB), National Assoc of Schools of Public Affairs and Administration (NASPAA), Assoc to Advance Collegiate Schools of Business (AACSB – Int'l), Commission on Accreditation of Healthcare Management Education (CAHME), Association for Advancing Quality in Educator Preparation (AAQEP), State Board for Educator Certification (TEA), National Association of Schools of Art & Design (NASAD), Commission on English Language Program Accreditation, National Association of Schools of Music (NASM), Commission on Collegiate Nursing Education (CCNE), Commission on Accreditation of Athletic Training Education (CAATE), Council on Social Work Education (CSWE); Human Subjects Federal wide Assurance Number, OHRP: FW00001762, Animal Welfare Assurance Number, OLAW: A3169-01, Department of State DDTC Registration, Registrant Code M22277, USDA Animal Welfare Act Registration Number: 74-R-0075

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OVERVIEW

UTA is a comprehensive research, teaching, and public service institution with nearly 130 years of academic excellence whose mission is the advancement of knowledge and the pursuit of excellence. UTA is a Carnegie Foundation "Research-1: highest research activity" research university and the largest institution in the Dallas-Fort Worth Metroplex (4th largest U.S. metropolitan area). UTA is tackling important issues and developing future technology, with more than $135 million in expenditures in critical areas like energy across many of our colleges including Science and Engineering, Health Innovations, and Education. UT Arlington has over 41,000 students, 1,500 faculty and 2,500 staff.

RESEARCH CAPABILITIES

COLLEGE OF SCIENCE:

BIOLOGY: Aquatic ecology, Cell and developmental biology, Comparative genomics, Ecology and evolution, Environmental microbiology, Evolutionary ecology, Evolutionary genomics, Herpetology, Marine biology, Microbiology, Molecular biology, Molecular evolution, Speciation Genetics, Structural biology, Virology

CHEMISTRY & BIOCHEMISTRY: Analytical chemistry, Biochemistry, Environmental chemistry, Materials and polymers, Nano-chemistry, Organic chemistry, Organometallic chemistry, Physical chemistry, Separation chemistry, Synthesis chemistry

EARTH & ENVIRONMENTAL SCIENCE: Biostratigraphy, Climate, Environmental geochemistry, Geochemistry, Geodesy, Geomechanics, Hydrogeology, Neotectonics, Paleoceanography, Sedimentology, Structural geology, Tectonics

MATHEMATICS: Algebra, Applied mathematics, Computational mathematics, Geometry, Mathematical biology, Mathematics education, Probability, Mathematical statistics

PHYSICS: Astrophysics, Nanostructured materials, Chaos and nonlinear physics, Condensed matter physics, High energy physics, Nano-biophysics, Nanostructured magnetic materials, Space physics, Theoretical condensed matter physics

PSYCHOLOGY: Health psychology, Cognitive psychology, Neuroscience, Developmental psychology, Industrial and Organizational psychology, Social and personality psychology

COLLEGE OF ENGINEERING:

AERODYNAMICS AND AEROPROPULSION: Hypersonics, computational fluid dynamics, vertical lift/rotorcraft aerodynamics, wind turbine aerodynamics, formation flight aerodynamics

AI/ML AND BIG DATA ANALYTICS: Artificial Intelligence, Machine Learning, Computer Vision , Data Analytics, Databases, Human-Computer Interfaces

AUTOMATION/AUTONOMOUS SYSTEMS: Robotics, artificial intelligence, machine learning, computer vision, assistive technologies, unmanned vehicle systems, flight dynamics and control

BUILT INFRASTRUCTURE: Sustainable and resilient structures, pipeline engineering, earthquake engineering and hazard mitigation, solid waste, structural health monitoring, pavements

COMMUNICATIONS AND NETWORKS: Radar and sensor networks, optical communications, computer networks, mobile communications

CYBER-INFRASTRUCTURE: Hardware, Software and Information Security, Radar and Sensor Networks, Mesh Communications, Distributed Processing, HPC and Cloud and Edge Computing, Cyber-Physical Systems

ENERGY MANAGEMENT AND SUSTAINABILITY: Oil/gas excluding extraction, renewable energy, batteries, power electronic conversion, electric power grids, waste to energy, thermal management of electronic devices

HEALTHCARE: Large scale analysis of genome, proteome, gene sequencing and functionality, protein production and modification, omics, tissue regeneration/repair, cancer therapy, biomedical imaging, diagnostic arrays, soft tissue replacement

MANUFACTURING: Composites, sustainable manufacturing, micro/nano manufacturing, automation, simulation, additive manufacturing and certification

MATERIALS: Composites, biomaterials/tissue engineering, electronic/bio/nanomaterials, sustainable materials (protection, management), materials for advanced sensing, bioscaffolds, medical devices

PHOTONICS: Semiconductor Optoelectronics, Optical Lattices, Photonic crystals and Metamaterials, Optofluidics and Optics Sensors, Nonlinear and Quantum Optics, Silicon Photonics and System on a Chip, Biosensing

SMART TRANSPORTATION: Planning and Policy, Traffic, Transportation Systems (underground, ground, air), Airports, Infrastructure, Freight, Mixed-Mode Transportation, Transportation Equity

STRUCTURAL AND MECHANICAL SYSTEMS SIMULATION: Computational Mechanics, Computational Fluid dynamics, Failure Analysis and Simulation, Diagnostics and Prognostics, Biomechanics Modeling, Multiscale Simulation

WATER: Flood mitigation, health impact, water resources, water supply and demand, hydrology, environmental health, wastewater

COLLEGE OF NURSING AND HEALTH INNOVATION:

NURSING: Muscle Physiology and Musculoskeletal Disease, Gerontological Technology Development, Improvements

in Health Outcomes, PTSD and Depression in NICU Mothers, Telehealth/Telemedicine Training, Nursing Education Research, Psychosocial Health Among Persons and Their Families Living with Dementia, Promoting Health and Quality of Life in Vulnerable Populations, Health Disparities in Rural, Minority, and Vulnerable Populations, Palliative and End-of-Life Care, Intracellular Calcium Signaling and its Pathophysiological Implications in Human Diseases, Sexual Health Services, Telepresence Robots, Healthcare Simulation, Patient Safety and Quality in Urban and Rural Areas, Rapid Healing Through New Biomaterials and 3D Printing/Nanofabrication

KINESIOLOGY: Applied Physiology and Advanced Imaging, Human Joint Mechanics and Neuromuscular Control Upon Health Outcomes, Interaction Between Blood Vessels and Bone in States of Health and Disease, Dynamic Blood Pressure Control with an Emphasis on Racial Disparities, Development of Motor Behavior, Physiological Responses of Wheelchair Athletes, Neural Cardiovascular Control in Human Health and Disease, Cardiovascular Response to Exercise, Diet, and Alcohol Use in Humans, Applied Statistics, Biostatistics and Cognitive Psychology, Integrative Immunology, Mechanisms of Impaired Autonomic and Vascular Function, Birth Outcomes and Health Of Black Women, Physical Activity Epidemiology, Neuromuscular Diseases, Nicotine and Tobacco Research, Physiological and Psychological Effects of Physical Education In Youth, Wearable Sensors for Chronic Disease Prevention, Athletic Injuries, Health Information Technology

COLLEGE OF EDUCATION:

Culturally Inclusive Instruction, Online Student Success, Effectiveness of Visual Performance Feedback and Self-Evaluation, Occupational Education, STEM Education, Health Literacy

SCHOOL OF SOCIAL WORK:

Virtual Reality Adventure Training Exergaming (V-RATE) on Health Outcomes, Posttraumatic Growth and Transformation in Military, Wind Therapy

INTERDISCIPLINARY RESEARCH:

Brain Health, Cancer Therapies, Cardiovascular Disease, Healthy Aging, Genome Sequencing, Infectious Disease

RESEARCH CENTERS & INSTITUTES

AERODYNAMICS RESEARCH CENTER: The Aerodynamics Research Center has existed at the university since the 1930s when it was originally an aircraft maintenance and fabrication facility. The present ARC was built in 1986, allowing for a large expansion of equipment which now includes low-speed, transonic, supersonic, arc jet, and hypersonic tunnels. Current research has focused on experimental high-speed and high-temperature aerodynamics, shock/boundary layer interaction, and detonation. In addition to the experimental facilities, we have extensive capabilities to study and test aerodynamic models using computational fluid dynamics. The experimental test results can be used to validate the CFD models, and vice-versa. Our clients and sponsors include both corporate and government organizations.

BONE-MUSCLE COLLABORATIVE RESEARCH CENTER: The BMRC brings recognized researchers with different areas of expertise that are highly complementary in bone, muscle, neuronal, and vascular biology.

CENTER FOR ADDICTION AND RECOVERY STUDIES (CARS): Provides researched, evidenced-based, trauma informed services in prevention, intervention, and recovery support services; trains social workers ready to impact changes in oppressed populations; and adds to addiction and recovery practice knowledge through collaborative research. This is accomplished through programs offered in the Dallas and Tarrant counties, instituting a comprehensive student intern training program for social work interns, and collaborating with researchers from the School of Social Work and the community.

CENTER FOR ADVANCED CONSTRUCTION MATERIALS: The Center for Advanced Construction Materials (CACM) is a state-of-the-art interdisciplinary, materials science, civil engineering, and mechanics Center for developing and testing innovative and engineered, smart materials for the infrastructure. CACM researchers advance the

knowledge to design, characterize, and implement the use of smart and innovative materials, addressing the societal needs of infrastructure materials of the new concepts of construction based on the benefits of the properties at the nanoscale to build structures at the macroscale.

CENTER FOR ARTIFICIAL INTELLIGENCE AND BIG DATA (CARIDA): The Center for Artificial Intelligence and Big Data (CARIDA) focuses on cutting-edge research in large-scale data analysis of very large, diverse data sets that arise in a multitude of today's real-world applications. The mission of CARIDA is to enable pursuit of grand-challenge problems in artificial intelligence and big data by synergizing the strong expertise in various disciplines across COE, UTA as well as external collaborators, with the goal of establishing UTA as a leader in big data technologies and services.

CENTER FOR ASSISTIVE TECHNOLOGIES TO ENHANCE HUMAN PERFORMANCE (IPERFORM): The iPerform Center began as an NSF-funded Industry-University Cooperative Research Center (I/UCRC) that represents collaborations of professors and scientists at the University of Texas at Arlington and the University of Texas at Dallas. Upcoming planned sites include UT San Antonio, UT Health Sciences Center San Antonio, and University of South Florida in Tampa. iPerform's primary mission is to bring together university and industry researchers to advance basic and applied research in Assistive Technologies to enhance human performance.

THE CENTER FOR EDUCATIONAL RESEARCH, POLICY, AND PRACTICE: The Center for Educational Research, Policy, and Practice serves as a resource for research and collaboration among educators and leaders throughout Texas and the United States.

CENTER FOR ENTREPRENEURSHIP AND TECHNOLOGY DEVELOPMENT: The Center for Entrepreneurship and Technology Development fosters a vibrant and supportive atmosphere for our students, scholars, and researchers as they drive to innovate, commercialize new technologies, and pioneer new companies that will impact our North Texas communities and the global economy for decades into the future.

CENTER OF EXCELLENCE FOR HIGH ENERGY PHYSICS: The Center of Excellence for High Energy Physics performs fundamental research at the highest energy scales through participation in experiments at the world's most advanced accelerators.

CENTER FOR HEALTHY LIVING AND LONGEVITY: The Center for Healthy Living and Longevity aims to improve the quality of life of older adults by improving physiological health with innovative, evidence-based physical rehabilitation programs.

CENTER FOR HISPANIC STUDIES IN NURSING AND HEALTH: The CHSNH aims to advance the health and human condition of underserved and culturally diverse, Spanish-language populations in the United States and abroad.

CENTER FOR RENEWABLE ENERGY, SCIENCE & TECHNOLOGY (CREST): CREST is a center of excellence in energy research and development in Texas.

CENTER FOR RURAL HEALTH AND NURSING: Our Center is working to increase access to high quality health care through building sustainable partnerships between The University of Texas at Arlington College of Nursing and Health Innovation and underserved rural communities in Texas.

CENTER ON STOCHASTIC MODELING, OPTIMIZATION & STATISTICS: The Center on Stochastic Modeling, Optimization, and Statistics (COSMOS) researches the design and modeling of complex real-world systems to develop new methods for making sound decisions. COSMOS methods seek to integrate statistics, optimization, and simulation/stochastic modeling to achieve better solutions more efficiently, and COSMOS applications customize approaches to match the needs of the decision-maker.

CLINICAL IMAGING RESEARCH CENTER: The UT Arlington Clinical Imaging Research Center (CIRC) is a comprehensive imaging core established in 2023 to advance clinical translational research through magnetic resonance imaging. Featuring a new 3-Tesla magnetic resonance imaging (MRI) machine, one of the main research areas for the new center is brain health.

CROSS TIMBERS APEX ACCELERATOR: Cross Timbers Procurement Technical Assistance Center helps companies prepare for contracting with local, state, and federal governments. Its mission is to increase the number of contracts awarded to companies in the 72-county service area resulting in increased revenue and jobs in the area.

ELECTRONICS, MEMS AND NANOELECTRONICS SYSTEMS PACKAGING CENTER: The EMNSPC is a partner in the NSF I/UCRC Center for Energy-Smart Electronic Systems, working with government, industry, and academia to develop systematic methodologies for efficiently operating electronic systems.

INSTITUTE FOR PREDICTIVE PERFORMANCE METHODOLOGIES: IPPM includes faculty members in Mechanical and Aerospace and Materials Engineering Departments, and offers education, research, and development experience in simulation, design, and manufacturing of composite materials, sensors and other bioengineering devices, nanomaterial design and fabrication, characterization of material properties and performance under mechanical (including high rate loading), thermal, and electrical/dielectrical applied environments.

MULTI-INTERPROFESSIONAL CENTER FOR HEALTH INFORMATICS: The Multi-Interprofessional Center for Health Informatics draws from the strengths and knowledge of multiple professions and disciplines with the goal of transitioning from “sick care” to “health care."

SMARTCARE TECHNOLOGY DEVELOPMENT CENTER: SmartCare is a collaborative project between the College of Nursing and Health Innovation and the College of Engineering. This technology development center develops, builds, and deploys the next generation of intelligent care technologies enabling a significant nationwide improvement in in-home health care.

SOLID WASTE INSTITUTE FOR SUSTAINABILITY: The Solid Waste Institute for Sustainability (SWIS) is an Organized Research Center of Excellence (ORCE) dedicated to developing clean and healthy urban cities through sustainable waste management.

STEM EDUCATION RESEARCH COLLABORATORIUM AND RESOURCE CENTER: The STEM Center is designed as a hub of innovation for STEM education research within the UT Arlington organization and beyond.

TEXAS MANUFACTURING ASSISTANCE CENTER (TMAC): TMAC delivers hands-on business management, technology and operations solutions to a businesses, including manufacturing, distribution, logistics, construction, health care and government. It has an array of services that accelerate profitable growth by developing and improving products, processes, and people skills. Focus areas include Strategic Management, Technology, and Operations.

CORE FACILITIES

ANIMAL FACILITIES: The UTA Animal Care Facility just completed a more than$3million dollar renovation of the facility that included upgrade of the Barrier Configuration. Specifically, there are seven Animal Holding Rooms outfitted for IVC Caging with about 2,500 cages at full capacity, three Procedure Rooms in Barrier, and a1,000 sq. ft. dedicated space for pathogen-free mice. Upgrades included new gowning room, air shower, and post decontamination area. Major equipment upgrades include pass through autoclave, misting tunnel, compressed air system, expanded automated watering system, reverse osmosis filtering system, and Bio Safety cabinets in quarantine rooms. An additional room for BSL-2 studies was added as well. The facility employs full-time staff to provide daily monitoring and routine animal husbandry services to UTA investigators. Routine and emergency medical care and surgical training are also provided by an attending veterinarian. The UTA Animal care facility has been AAALAC certified since 2013 and is qualified for USDA animals.

CHARACTERIZATION CENTER FOR MATERIALS AND BIOLOGY: The Characterization Center for Materials and Biology is available to faculty, students, and researchers from UTA, other institutions and industry to provide state-of-the-art instrumentation for use by the university research community to foster interdisciplinary collaboration and strengthen research activities.

COMPUTATIONAL FACILITIES: The Computer Science and Engineering Department provides shared computing resources for the research and teaching activities of the department. The department offers networking, disk storage and backup, general-purpose timesharing access to multiuser systems, email, and workstation support. The department's central facility is for the support of research, and is open to graduate students, faculty, and staff. This facility is based upon Sun and Linux servers, with sharing of file systems provided via NFS. The computing staff also manages various computing laboratories, including a graduate student workstation room with workstations from Sun, Dell, and Apple, as well as several undergraduate computer laboratories. All users' directories are stored on a RAID system, and the departmental LAN is based on Ethernet and TCP/IP. The departmental network is connected to the UTA campus backbone via a gigabit connection. An 802.11G wireless network is available throughout the department. The High Performance Computing (HPC) systems at Texas Advanced Computer Center (TACC) at University of Texas can also be used in the proposed project.

NORTH TEXAS GENOME CENTER: The North Texas Genome Center (NTGC) is a research center dedicated to performing population-based genomic studies. Through various research collaborations, including the partnership with Texas A&M University to form the Texas Genomics Core Alliance, the NTGC conducts research in areas of disease prevention, cancer genomics, immunogenetics and fundamental aspects of genetics. The NTGC houses a variety of high-end research instruments and a team of research staff to assist in sequencing projects and data analysis. The NTGC staff work with students in planning experiments and help to mentor student research experiences in genomics and bioinformatics.

SHIMADZU CENTER FOR ADVANCED ANALYTICAL CHEMISTRY: The Shimadzu Center for Advanced Analytical Chemistry, which opened in 2012, is a $6 million mass spectrometry and analytical chemistry research center which includes a large number of mass spectrometers, as well as state-of-the-art supporting peripheries (e.g. chromatography and sample preparation) and other spectroscopy instrumentation.

SHIMADZU CENTER FOR BIO-MOLECULAR IMAGING: The Shimadzu Center for Bio-Molecular Imaging provides instrumentation focused on the identification of molecular signatures such as: protein and lipid detection, microorganism identification, biomarker discovery, and advanced brain imaging. The center offers an automated protein digestion station with liquid chromatograph-mass spectrometer, matrix-assisted laser desorption/ionization-mass spectrometer, protein sequencer, a variety of spectrophotometers from the UV-Vis to the Near Infrared region, and the first functional Near-Infrared Spectroscopy brain imager in the United States.

SHIMADZU CENTER FOR ENVIRONMENTAL, FORENSICS, AND MATERIAL SCIENCE: The Shimadzu Center for Environmental, Forensics, and Material Science harnesses the power of the most up-to-date technology for the study of major and trace element analysis, contaminant detection, and material structures. Instrumentation includes multiple X-ray platforms and electron microprobe analyzer; atomic absorption, inductively coupled plasma emission and Fourier transform infrared spectroscopy. Further enhanced by particle size analyzers from the nano- to micro-scale and total organic carbon analyzers. The facility has many applications, including homeland security, environmental science, geological science, and material engineering.

SHIMADZU INSTITUTE CENTER FOR NANOSTRUCTURED MATERIALS: The Shimadzu Institute Center for Nanostructured Materials has several state-of-the-art instruments to support interdisciplinary research. Our instrumentation includes atomic force microscopy, x-ray photoelectron spectroscopy, X-ray diffraction for characterization of thin-film, powder, as well as single-crystal structures, and Raman spectroscopy. Users of our research center include faculty PIs, postdoctoral research associates, and students from the UTA chemistry, physics, and materials science departments, other universities, as well as commercial clients.

SHIMADZU NANOTECHNOLOGY RESEARCH CENTER: The Nanotechnology Research & Education Center is an interdisciplinary resource open to scientists within and outside of the University. Research activities are conducted through mutually beneficial associations of chemistry, electrical engineering, mechanical and aerospace engineering, materials science and physics faculty, graduate students and research assistants at UTA, as well as collaborative efforts with investigators at other universities and in the private sector.

SMART HOSPITAL: The newly modernized Smart Hospital is a training space that includes mock patient rooms and medical robots. The Smart Hospital Building, a new facility that will unite the University's School of Social Work

(SSW) under one roof with the College of Nursing and Health Innovation's (CONHI) The 150,000-square-foot facility is a mix of flexible, state-of-the-art, technology-enriched learning spaces; teaching and research labs; student engagement, study, and support spaces; faculty and staff offices; and the Smart Hospital simulation learning center.

UTA RESEARCH INSTITUTE (UTARI): UTARI's mission is to perform research and development linking discovery and technology commercialization to ultimately benefit society. Building sustainable relationships with regional business and industry is key to our success.

PAST PERFORMANCE

The University of Texas at Arlington has successfully completed sponsored projects and run funded centers from various federal, state and local agencies as well as for profit and not for profit companies.