In 1967, then-Delaware State College received its first federal funding support for research on campus when its agriculture scientists obtained a $12,413 grant from the U.S. Department of Agriculture in support of two soybean research projects. Fast forward more than 40 years, and over the last decade Delaware State University has received tens of millions of dollars in federal funding to support its diverse research projects.

Basic and applied research is central to DSU’s land-grant mission and is significantly relevant to advancing knowledge, enriching the quality of life in our state and nation, and improving the state’s economy and global competitiveness.

One of the primary goals of Delaware State University’s current Strategic Plan is to increase and sustain excellence in scholarly and creative research that addresses significant state, regional, national and global challenges. Therefore, the institution’s research pursuits — many of which are interdisciplinary — are in a number of critical areas such as biomedical research, neuroscience, optics, renewable energy, food safety, water quality, health disparities and the social and behavioral sciences.

In this edition of Delaware State University Research Capability, we highlight some of these exciting research projects, programs and activities that illustrate the enormous commitment of our faculty and staff to excellence at every level across a broad spectrum of disciplines.

For more information, please contact: Provost and Vice President for Academic Affairs Dr. Alton Thompson | 302.857.6100 | athompson@desu.edu

Professor Harry L. Williams, Ed.D.
The scope of faculty research in agriculture and natural resources at Delaware State University ranges from molecular investigations in genomics, organismal research in plant and animal sciences, aquatic sciences studies of ponds and wetlands, population biology to tracking of songbirds, bats, marine and freshwater fish and shellfish. Research in soils relates to the use of “biochar” to correct soil structure and improve soil fertility, and research in plant science includes investigations of vegetable improvement and the characteristics of capsaicin synthetase and storage in hot pepper (Capsicum species).

The College of Agriculture and Related Sciences also conducts livestock research, with special emphasis on small ruminants; aquaculture, urban forestry, protected agriculture research and demonstration; collection and taxonomic classification of rare and endangered plant species; and preservation and long-term storage of plant species in the Claude E. Phillips Herbarium. The college owns one of the best-known herbaria in the United States and in the Delaware Peninsula.

The College of Agriculture and Related Sciences also is the site of the only national laboratory Microbial Safety of Aquaculture Products Center of Excellence. A partnership between the U.S. Department of Agriculture and the University, the laboratory is intended to foster complementary research on problems of national and regional concern and to enhance cooperative research with participating stakeholders. The College also has two research farms and an aquaculture facility, as well as an 80-acre natural forest and wetland complex used for environmental science education and research. The farms include the 192-acre Outreach and Research Center where soil and plant research field experiments are conducted and where Cooperative Extension demonstrations and exhibits are held. The 75-acre Hickory Hill Farm hosts research with farm animals, including cattle, goats and poultry. The aquaculture facility occupies 13 acres of land and includes 34 ponds and a 14 X 20 m temperature-controlled wet laboratory.

The Department of Agriculture and Natural Resources in the College of Agriculture and Related Sciences has two collaborative centers — the Environmental Cooperative Science Center and the Living Marine Resources Cooperative Science Center — that are described in the section titled University Research Centers.

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Biomedical research is, by nature, a collaborative and interdisciplinary endeavor. This is particularly the case within the College of Mathematics, Natural Sciences and Technology at Delaware State University, where current research projects are reaching across multiple departmental — and college — lines.

One such effort is the Delaware Idea Networks of Biomedical Research Excellence (INBRE) III grant, which aims to build upon the previous successes of INBRE I and II by furthering the statewide effort to strengthen the biomedical research and education network within the Delaware region. Funded by the National Institutes of Health, research projects are conducted in one of three focus areas: cardiovascular, cancer and neuroscience.

Another prominent program is the Delaware Center for Neuroscience Research (a Centers of Biomedical Research Excellence (COBRE) grant). This NIH-funded effort is aimed at supporting neuroscience research projects, further strengthening intrastate neuroscience education, as well as encouraging meaningful collaboration among the region's burgeoning neuroscience research community.

The Laboratory for Chemical Genomics engages in the development of clinical applications utilizing nanofiber scaffolds as patches for implantation of gene-edited cells into human tissues. This award-winning lab is known for being a pioneering force in the development of these specialized, single-strand DNA oligonucleotides (ODNs) for the treatment of inherited disorders such as sickle cell anemia.

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Biological Sciences:
Melissa A. Harrington, Ph.D.
- mharrington@desu.edu
- Neuroscience

Department of Chemistry:
Eric B. Kimes, Ph.D.
- ekbrown@desu.edu
- Biochemistry, molecular biology and clinical implications of gene editing in human cells.

Cheng-Yu Lai, Ph.D.
- cycy.lai@desu.edu
- Irreducible multi-drug delivery carriers to eliminate cancer and cancer stem cells.

Dula Man, Ph.D.
- dxman@desu.edu
- Nanomaterial engineering for biomedical applications.

Daniela R. Radu, Ph.D.
- dradur@desu.edu
- Nanomedicine

Department of Physics & Engineering:
Qi Liao, Ph.D.
- qili@desu.edu
- Molecular interactions of biopolymers and nanomaterials, biomolecular interactions in complex media, electronic and photonic transport in carbon nanotubes.
Computational Intelligence and Applications in Mathematics

Recent work involves the development and analysis of algorithms, computational geometry, simulation and analysis of medical images, machine intelligence, as well as surveillance and video analytics.

The Applied Mathematics Research Center (initially established with grants by the Department of Defense) has been fertile ground, Ongoing research into cyber security has resulted in paper publications that have garnered national attention, as collaborations with the Delaware Center for Cybersecurity have grown. The Laboratory for Intelligent Perceptual Systems (LIPS) is investigating machine learning and is currently engaged in researching the development of protocols that marry intelligent monitoring of home care patients having chronic illness (robotics) with delivery of timely interventions to prevent further patient deterioration.

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Computer and Information Sciences:
Garry Holness, Ph.D.
• Machine learning, machine perception, robotics and computer vision
Hongxia Ma, Ph.D.
• Cybersecurity, information security and privacy

David D. Pokrajac, Ph.D., MBA
• Algorithms, simulation and analysis of medical images, machine learning and video analytics

Tomasz G. Smolinski, Ph.D.
• Biomedical informatics
• Exploration and analysis of large parameter spaces of neural models

Department of Mathematical Sciences:
Jinjie Liu, Ph.D.
• Machine learning
• Computational fluid dynamics and oceanic optics

The primary objective of the Economic Development and Entrepreneurship Research Program at Delaware State University is to design and execute programs and strategies which will systematically lead to activities that will catalyze economic growth in Delaware and the Delmarva region. Simply stated, the goal is to mobilize the University’s intellectual and technical resources to create an economic superstar that spans innovation and entrepreneurship and drives economic growth.

By mobilizing and directing the expertise available at Delaware State University, state agencies and entities, and the private sector, the research program — primarily through the University Center for Economic Development and International Trade and the Delaware Center for Entrepreneur Development — equips the public and decision makers with the foundation for systemic, thoughtful dialogue of public policy issues. The center takes a long-term, strategic view of economic forces and is objective and transparent in its execution and delivery.

Economic Development and Entrepreneurship

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Accounting, Economics and Finance
Michael Casson, Ph.D.
• Economic and fiscal impact analysis, feasibility and market analysis, resource economics, economic development and economics

Department of Business Administration:
Liliane Crawford, M.S.
• Entrepreneurship and economics

The Economic Development and Entrepreneurship Research Program has the following main areas of responsibility:
• To compile data required to monitor and forecast economic developments in Delaware.
• To maintain models of the state economy with specific attention to Kent and Sussex counties.
• To serve state agencies, municipal governments, nonprofit and private organizations and Delaware citizens through the database, research, publications and outreach of the University Center’s Data Center.
• To promote international trade among small- to medium-sized enterprises through research and training.
• To develop and enhance marketable skills through workforce development and coordination efforts with public and private providers.
• To support entrepreneurial efforts through the provision of incubator type services such as marketing research, accounting, project management and IT services.
• To provide international trade among small- to medium-sized enterprises through research and training.
• To develop and enhance marketable skills through workforce development and coordination efforts with public and private providers.
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• To provide business training and entrepreneurial education for youth and adults through classes and specialized workshops.

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Environmental chemistry and renewable energy research is a growing capability within the College of Mathematics, Natural Sciences and Technology at Delaware State University. Faculty researchers are currently investigating hydrogen storage materials, biosensing using laser-based photonic sensors and identifying environmental behaviors of organic contaminants in the environment and their biological impact on the ecosystem.

Research in the newly established Renewable Energy Research and Education Center focuses on utilizing municipal solid waste for renewable energy production and environmental monitoring. One point of investigation is the use of municipal solid waste to generate methane gas and biodiesel as part of green energy production. A second research interest involves the use of laser-based technologies for monitoring landfill leachate and detection of trace amounts of gases present in a biomethane landfill.

Entrepreneurial Finance

One of the challenges faced by new ventures in emerging and developing countries is raising capital because of the underdeveloped nature of both national financial institutions and well-structured venture capitalist markets.

LIBS spectrum of leachate samples for facility leachate tanks of the Sandtown Landfill of the Delaware Solid Waste Authority

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SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Business Administration:

Constant Beugre, Ph.D.
- cbeugre@desu.edu
- Entrepreneurship, organizational justice and neoclassical behavior

Nandida Das, Ph.D.
- ndas@desu.edu
- Entrepreneurship, hedge funds and corporate finance

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Chemistry:

Andrew Goudy, Ph.D.
- agoudy@desu.edu
- Investigation of hydrogen storage materials

Cheng Yu-Lai, Ph.D.
- cylai@desu.edu
- Detection of emerging organic pollutants at the nanomolar-to-picomolar level and biodiesel research

Daniela R. Radu, Ph.D.
- dradur@desu.edu
- Solar materials for inorganic thin-film solar cells and commercial sensors for environmental monitoring

Qiquan Wang, Ph.D.
- qwang@desu.edu
- Environmental behaviors of organic contaminants in the environment and impacts on the ecosystem

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Physics and Engineering:

Muhammad A. Khan, Ph.D.
- mkhan@desu.edu
- Laser-based photonic sensors, sensor networks to measure greenhouse gases for environmental sensing, global climate change and industrial applications

Mokti T. Rana, Ph.D.
- mtrana@desu.edu
- Uncooled infrared, microsensors, biosensing and solid-state infrared-gas production

Interdigitized electrodes for biosensing and drug delivery

Design and simulation of uncooled pyroelectric detector used in biosensing

10 11
The value of a healthy lifestyle, which includes maintaining good health and preventing chronic diseases, is a strong focus at DSU. The Delaware State University Health and Wellness initiatives are designed to positively impact the health of Delawareans by promoting the habits of a healthy lifestyle. In the host institution for the Delaware Center for Health Promotion, DSU strategically partners with state agencies, nonprofit organizations, educational institutions and other companies to develop, translate and implement strategies and solutions through instruction, research, scholarship and outreach.

While the diversity of our population is one of our nation’s greatest assets, one of its greatest challenges is reducing the profound disparity in health status of racial and ethnic groups. DSU seeks to identify the health research capacity that addresses the current and emerging health needs of racial and ethnic minorities and assess at identifying potential risk factors for disparate health outcomes. Collectively, the University will bring about the critical change that needs to happen to make Delaware a healthier place to live.

Research in the Department of Nursing includes investigations of methodologies to improve the health and well-being of individuals, families and populations. Specific areas of focus include:

- Maternal and child health, particularly in relation to the social determinants of health and birth outcomes, identification of systems-related indicators associated with fetal and infant deaths and the variables in maternal and child health;
- Some pregnancy-related — a poor moral approach;
- Prevention and intervention in health professional substance abuse;
- Culturally competent care.

In another line of research, epidemiological data have been mapped using ESRI software. The data are being analyzed to identify clusters in multiple risk factors for cardiovascular disease and obesity, and the related correlations. In addition, a descriptive assessment of risk factors and the health status of University students is being conducted. Health and fitness data and the participation in physical activity among students at a college setting is being tracked, the goal being to get a profile of DSU students according to these measures and to determine what behaviors and health conditions need attention. The results can be used for interventions within the fitness and wellness courses, as well as to influence programming for the University’s Center for Health Promotion.

A third line of research in this area assesses the role of single-in, moderate intensity levels of aerobic exercise in improving blood pressure patterns in women who are at a high risk for developing high blood pressure.

Finally, research in the Department of Education focuses on human performance, physical activity and special children, sports psychology, health and wellness, and diversity. While research in the Department of Social Work focuses on prevention and managing health, access to direct services and health literacy, particularly among the aging population, the poor and underserved, minorities and in low wealth communities. In addition, epidemiology studies and analysis for both whole tissue and chronic diseases have been conducted in a variety of focus areas, including:

- Patterns of leisure and mass media;
- HED — trends, cancerous disease, partner services, and spirituality in transcultural populations;
- Heart attack and stroke — awareness of signs and symptoms — analysis and risk factor completion at the state level (for Delaware);
- Cancer screening investigations;
- Analysis of Centers for Disease Control data sets to assess the factors and disparities in the presence of chronic diseases such as cancer, obesity, diabetes, asthma, cardiovascular diseases, asthma, and chronic obstructive pulmonary disease;
- Identification of systems-related indicators associated with fetal and infant deaths and the correlates of maternal morbidity and mortality; outcomes, identification of systems-related indicators associated with fetal and infant deaths and the correlates of maternal morbidity and mortality; outcomes, identification of systems-related indicators associated with fetal and infant deaths and the correlates of maternal morbidity and mortality; outcomes, identification of systems-related indicators associated with fetal and infant deaths and the correlates of maternal morbidity and mortality; outcomes.

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Nursing:

- Margaret Augustine, DNP
  - maugustin@desu.edu
  - Alternative learning formats, the use of high- and low-fidelity simulation, and maternal and child health
- Josephine Davis, DNP
  - jdavis@desu.edu
  - Alternative learning formats, the use of high- and low-fidelity simulation, and maternal and child health
- Stephanie Evans-Mitchell, Ed. D.
  - smitchell@desu.edu
  - Recognition and intervention in health professionals' abuse of substances
- Eunice Gwanmesia, MSN
  - egwanmesia@desu.edu
  - Culturally competent care as an effective means to reduce/eliminate outcome disparities and improve access to care
- Michelle O’Neal, Ed. D.
  - moneal@desu.edu
  - Alternative learning formats and the use of high- and low-fidelity simulation

Department of Education:

- الناران نورث، PhD.
  - nnorth@desu.edu
  - Alternative learning formats, the use of high- and low-fidelity simulation, and maternal and child health
- Carla Mungia, Ph. D.
  - cmungia@desu.edu
  - Evaluation of genetic, anatomical, physiological and environmental factors that impact disease, treatment and recovery, and the ability of high- and low-fidelity simulation to modify these factors

Department of Social Work:

- Anthony Hile, PhD
  - ahile@desu.edu
  - Aging, specifically caregiving, the impact of flourishing and diversity
- Tina Jordan, Ph.D.
  - tjordan@desu.edu
  - Aging population, public health, assisting those in need, intervention through health literacy, health inequalities and economic disparities, prevention and intervention efforts for service disengaged people, communities of families and individuals
- Shiamon Kingery-Driggs, PhD.
  - sktingriggs@desu.edu
  - Aging, specifically caregiving, the impact of flourishing and diversity
- Kul Bhushan Suri, PhD.
  - ksuri@desu.edu
  - Population problems of developing countries, foreign policy in the U.S., child protective services, foster care for children with special needs, and child neglect to early sexuality
- Laura Thomas, PhD.
  - lthomas@desu.edu
  - Aging population, public health, assisting those in need, intervention through health literacy, health inequalities and economic disparities, prevention and intervention efforts for service disengaged people, communities of families and individuals
The scope of faculty research in human ecology at Delaware State University ranges from food and nutrition sciences to fashion merchandising.

The Department of Human Ecology targets the areas of nutrition and food safety issues at the local and national levels. Using a multidisciplinary approach, a team of food scientists and molecular biologists collaborate to conduct research focused on seafood and poultry safety and bacterial community study based on metagenomics. They also develop innovative courses providing new knowledge and skills that can lead undergraduates and graduate students in the food science major to new career opportunities in the food and agricultural industries.

Some specific research activities include:

- Developing new, rapid detection methodology for early detection of pathogens from seafood, poultry and water samples
  - A novel real-time polymerase chain reaction (PCR) assay to detect Listeria spp. presence in fish and seawater
  - LNA-mediated isothermal amplification assay to detect Vibrio spp. and Salmonella spp. presence in seawater and poultry products

- Developing probiotics for poultry products’ safety
  - Isolation of Lactic acid bacteria (LABs) from chicken ileum and Kimchi for potential use as feed supplements for live poultry to reduce pathogenic bacterial contamination of poultry products from farm to table
  - Isolation of Lactic acid bacteria (LABs) from Kimchi for potential use as probiotics in humans to improve intestinal microbial balance for health benefits

- Developing integrated research based on genomics
  - Developing the first food genomics lab courses and summer food biotechnology camp in the College of Agriculture and Related Sciences
  - Applying next generation sequencing (NGS) techniques and metagenomic study for food safety

- Optimizing physical and sensory properties of reduced-cholesterol butter and cheese

- Chemical characterization of the omega-3-rich Njangsa (Ricinodendron heudelotti) seed oil and its oxidative stability.

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Human Ecology:

Samuel Besong, Ph.D.
- sbesong@desu.edu
- Nutrigenomics (study of the effects of bioactive compounds in food on gene expression)

Jung-Lim Lee, Ph.D.
- jlee@desu.edu
- Food microbiology, food safety, metagenomics, probiotics and gene cloning

Stephen E. Lumor, Ph.D.
- slumor@desu.edu
- Lipid chemistry and cell lipid remodeling

USDA Food Safety Lab

David H. Klingeley, Ph.D.
- dkleingeley@ars.usda.gov
- Norovirus/Hepatitis A and food safety of shellfish

Gary P. Richards, Ph.D.
- gary.richards@ars.usda.gov
- Seafood safety and microbiology
Optics is perhaps one of the most prolific research application program areas on the Delaware State University campus. DSU has the unique distinction of housing the only historically Black College or University having an optical sciences Ph.D. program on its campus, with its optics program counted as one of less than 10 located in the United States and currently the only one on the Eastern seaboard. DSU will also allocate home to the site of a new, multimillion-dollar optical science research facility.

The Optical Science Center for Applied Research (OSCAR) engages in collaborative research with entities such as the Fox Chase Cancer Center, Northwestern University and Los Alamos National Laboratory to promote innovation through the use of optics and laser-based applications to bioscience, drug delivery, bioimaging and biotechnology within the environment.

Of notable achievement, National Aeronautics and Space Administration (NASA)-affiliated research has thrust the University’s researchers into the spotlight as instrumentation designed by DSU scientists has been utilized in the first-ever detection of water on the planet Mars.

Social Demography

Social science researchers at Delaware State University are employing social demographic data and methods to describe, explain and predict social phenomena and the effects of social and cultural forces on population distribution.

The research interests lie in the domain of the broad subfields of global migration, global interactions and health geographies, human and human-environment geographies including urban environments and marginality, population geography with emphasis on fertility, and migration, technology and transnationalization.

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Psychology:
Padmini Banerjee, Ph.D.

- pbanerjee@desu.edu
- The interdisciplinary and cross-cultural study of multi-layered individual identities (“amalgamated identities”), especially in the context of migration and its implications for diaspora mental health, and the role played by recent and emerging technologies in the everyday lives and experiences of people in diasporas.

Department of Mass Communications:
Myna German, Ph.D.

- mgerman@desu.edu
- Mass communications and globalization, migration and media, women’s studies and technology, languages and acculturation

Department of History, Political Science and Philosophy:
Raymond Turis, Ph.D.

- rturis@desu.edu
- Global migration, youth resilience, environmental change and fertility

SELECTED RESEARCHERS AND AREAS OF INTEREST

Department of Physics and Engineering:
Hacene Boukari, Ph.D.

- hboukari@desu.edu
- Fluorescence imaging, spectroscopy, light scattering and neutron scattering

Mohammad A. Khan, Ph.D.

- mkhan@desu.edu
- Development of novel laser-based photonic sensors and measuring greenhouse gases for environmental sensing

Noureddine Melikechi, D. Phil.

- nmelikechi@desu.edu
- Laser optics and optical science applications research

Thomas A. Planchon, Ph.D.

- tplanchon@desu.edu
- Laser optics and light-based imaging technologies for study of 3-D cellular processes in living cells and biological specimens

Imaging, Laser Optics Research and Biophysics

Department of Physics and Engineering:
Hacene Boukari, Ph.D.

- hboukari@desu.edu
- Fluorescence imaging, spectroscopy, light scattering and neutron scattering

Mohammad A. Khan, Ph.D.

- mkhan@desu.edu
- Development of novel laser-based photonic sensors and measuring greenhouse gases for environmental sensing

Noureddine Melikechi, D. Phil.

- nmelikechi@desu.edu
- Laser optics and optical science applications research

Thomas A. Planchon, Ph.D.

- tplanchon@desu.edu
- Laser optics and light-based imaging technologies for study of 3-D cellular processes in living cells and biological specimens

Social Demography
Creating and developing partnerships with private and corporate sponsors, educational institutions, and federal and state agencies are important pathways to fulfill the mission of Delaware State University. Research centers are representatives of how DSUcapitalize on this process. These centers are multipurpose, have a well-defined educational component and are established when a collection of faculty have secured long-term funding commitments to pursue unique research, public service, outreach and/or instructional endeavors.

Index of centers

University Centers

- Applied Mathematics Research Center
- Applied Polymer Research Center
- Center for the Study of Innovation Management
- Center for Hydrogen Storage Research
- Center for Integrated Biological and Marine Science
- Center for Applied Optics for Space Sciences
- Center for Advanced Algorithms
- Center for Applied Optics for Space Sciences
- Living Marine Resources Cooperative Science Center
- Optical Science Center for Applied Research
- University Center for Economic Development and International Trade

Collaborative Centers

- Delaware Center for Transportation Management
- Delaware Center for Enterprise Development
- Delaware Center for Health Promotion
- Delaware Small Business Development Center
- Delaware Center for Health Promotion
- University Center for Economic Development and International Trade
- Delaware Center for Transportation Management
- Delaware Center for Enterprise Development
- Delaware Center for Health Promotion
- Delaware Small Business Development Center

APPLIED MATHEMATICS RESEARCH CENTER

DSU's Applied Mathematics Research Center (AMRC) was initially funded by the Department of Defense (DoD) in 2003. AMRC is designed to create a research environment where multiple disciplinary groups work together to solve applied mathematics problems in military and other areas. The research center consists of mathematicians, computer scientists, electrical engineers, and researchers associated with the University

Director: Dr. Fengshan Liu  |  fliu@desu.edu

www.desu.edu/applied-mathematics-research-center

CENTER FOR IT SERVICES

The Center for IT Services exists to provide professional IT services to government agencies, municipal and small business enterprises in and around Delaware. The mission of the center includes providing technical support and services to students in the annual Summer Institute and project management.

Director: Dr. Chitthibabu Gorurandapalli  |  cgo@desu.edu

www.desu.edu/cits/services

CENTER FOR THE STUDY OF INNOVATION MANAGEMENT

The Center for the Study of Innovation Management (CSIM), housed in the Department of Business Administration in DSU's College of Business, is a research unit focused on the study of innovation management in organizations. Innovation management is defined as the activities, processes, routines and systems that foster knowledge creation, transformation, dissemination and diffusion in the organization toward change and adaptation in its pursuit of value creation and competitiveness.

Director: Dr. Carlos M. Rodriguez  |  crodriguez@desu.edu

www.desu.edu/center-for-the-study-of-innovation-management

DELAWARE CENTER FOR ENTERPRISE DEVELOPMENT

The Delaware Center for Enterprise Development (DCED) provides the needed support to assist in the success and development of business ventures. DCED becomes the communal north pole of the University of Delaware. The mission of DCED is to educate current and prospective entrepreneurs and enterprise managers through training programs, technical assistance and advice, and by providing access to capital. DCED provides business training and enterprises assistance for youth with startups through classes and specialized workshops, supports community economic development initiatives working in partnership with numerous organizations throughout the state, and offers one-on-one technical assistance to entrepreneurs.

Director: Mrs. Lillie Crawford  |  lfcrawford@desu.edu

www.desu.edu/enterprise-development

DELAWARE CENTER FOR HEALTH PROMOTION

The Delaware Center for Health Promotion (DCHP) was created to provide statewide health promotion programming that focuses on health maintenance and illness prevention. Working in conjunction with the Healthy Delaware Foundation (HDF), programming is offered under the auspices of the HDF’s newly launched Healthy Delaware initiative. The mission of the HDF is to encourage Delawareans to adopt healthier lifestyle behavirs to effect the overall quality of life and to reduce the incidence of preventable illness.

Director: Marianne Carter, M.S., R.D., CHES.  |  mcarter@desu.edu

www.desu.edu/center-for-health-promotion

FOOD BUSINESS INCUBATION CENTER

The incubator provides a low-cost commercial and licensed facility that can be used by food producers. Incubator tenants time-share space according to the amount of time needed while saving considerable expense over equipping their own kitchens. The kitchen incubator at Delaware State University is managed by the Delaware Center for Enterprise Development.

Director: Marianne Carter, M.S., R.D., CHES.  |  mcarter@desu.edu

www.desu.edu/food-business-incubation-center
MICROBIAL SAFETY OF AQUACULTURE PRODUCTS CENTER OF EXCELLENCE

The U.S. Department of Agriculture Agricultural Research Service (USDA-ARS) established the Microbial Safety of Aquaculture Products Center of Excellence (CSC) to address the need for increased understanding of factors related to the safety of products produced by the aquaculture industry. The project seeks to develop an improved framework for the safe production of fish for human consumption, with the long-term goal of reducing the incidence and severity of illness related to seafood consumption. The center is directed by Dr. Fengshan Liu. For more information, please visit www.umes.edu/lmrcsc/Default.aspx?id=15876.

UNIVERSITY CENTER FOR ECONOMIC DEVELOPMENT AND INTERNATIONAL TRADE

The University Center for Economic Development and International Trade (UCEDIT) promotes the economic development of Delaware through a range of initiatives. The center — funded by a grant from the Economic Development Administration of the U.S. Department of Commerce — provides targeted and strategic support to small- to mid-sized enterprises.

Collaborative Centers

DELaware IDEA NETWORKS OF BIOMEDICAL RESEARCH EXCELLENCE

The Delaware Biotechnology Institute (DBI) serves as the lead organization in the state of Delaware for the development of partnerships among major institutions of higher education in the state relative to biomedical research initiatives. DBI spearheads the Biomedical Research Infrastructure Network (BRIN) and the Delaware IDEA Networks of Biomedical Research Excellence (INBRE) as a culmination of the efforts of a balanced approach through BRIN. In 2006, the Delaware IDEA Networks of Biomedical Research Excellence (INBRE) was established as a continuation of the BRIN efforts. The objectives of the Delaware IDEA Networks of Biomedical Research Excellence (INBRE) are to:

- Establish research opportunities for faculty and students.
- Enhance the level of expertise of faculty and students.
- Provide a network for easy access to research techniques, resources and technology.
- Promote interdisciplinary research.
- Increase the outreach activities related to biomedical research.
- Improve the infrastructure, delivery system and information technology system related to biomedical research.
- Enhance training for students in the themes of research.
- Improve clinical research in the thematic areas of research.

The center provides a network for easy access to research techniques, resources and technology, and promotes interdisciplinary research.
The Department of Physics, and Engineering, at DSU is home to two major research centers: the Center for Integrated Biological and Environmental Research (CIBER) and the Center for Applied Optics for Space Sciences (CAOSS). These centers are part of a small, elite group funded by the National Science Foundation’s (NSF) Centers for Research Excellence in Science and Technology (CREST) and the National Aeronautics and Space Administration (NASA) initiatives. Undergraduate and graduate (Ph.D.) students will benefit from the opportunities to become research scientists and to work alongside accomplished researchers with state-of-the-art equipment. The centers provide both faculty mentoring and research at national and international conferences, and participating in seminars and other opportunities for professional development.

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Competitive Research grant. CIBER was created with the goals of serving as a faculty resource center to help coordinate writing and management of competitive research proposals, awarding seed grants to DSU investigators, coordinating student training and support, and participating in DSU’s summer research programs. The partners of CIBER are DSU, University of Delaware, Wesley College and Delaware Technical and Community College. CIBER has been instrumental in helping to coordinate DSU’s summer research symposia and the training of more than 50 undergraduate students, including those participating in the current Experimental Program to Stimulate Competitive Research (SPARC) internship and those who come to DSU from around the United States as part of DSU’s National Science Foundation’s (NSF) REU program in Plant Genome Research, and several other U.S. Department of Agriculture and NSF grant programs. CIBER continues to serve as the focal point for the submission of the Plant Genome Research Program to NSF and other grants to the National Institute of Food and Agriculture (NIFA) and to NSF SPARC.

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The Delaware Center for Neuroscience Research — launched in 2012 — is an interdisciplinary, inter-institutional, virtual center founded by a grant from the Centers of Biomedical Research Excellence program at the National Institute of General Medical Sciences, one of the National Institutes of Health. The goal of the center is to create infrastructure to support the research and career development of neuroscientists in Delaware, especially at Delaware State University and the University of Delaware, under the direction of Dr. Melissa A. Harrington at Delaware State University and Dr. Jeffrey Rosen at the University of Delaware. The center brings together a multidisciplinary group of neuroscientists with research related to neural development and plasticity. The Delaware Center for Neuroscience Research supports the open-science research projects of 13 investigators by providing significant funds for their research, release time from teaching and administrative responsibilities, and opportunities for professional development and for regular interaction with established scientists who act as scientific and career mentors. The center also helps to develop the research capacity of DSU by supporting the recruitment of new faculty members in the Department of Biological Sciences and Psychology. The new faculty are expanding neuroscience research at DSU while forming new interdisciplinary connections between investigators at DSU and across the state.

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The Dover Small Business Development Center in the Bank of America Building at DSU offers counseling and workshops to businesses in the area. www.dalenardc.org/center.aspx?center=54820&sub=0
It will be the policy of Delaware State University to recruit, hire, train and promote persons in all job titles without regard to race, color, religion, sex, age, disability, veteran status, national origin or any other characteristic protected by applicable law. ©Delaware State University