FLORIDA ATLANTIC UNIVERSITY

Highlighting research, scholarship and creative accomplishments

FAU

DIVISION OF RESEARCH

2011 ANNUAL REPORT

Table of Contents

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FULL SPEED INTO THE FUTURE

There are moments in the life of an institution when dramatic growth seems not only imminent but inevitable. This is such a moment for Florida Atlantic University. Research and creative activities across all academic disciplines are on a growth trajectory, and the stage is set for advances that promise to take FAU to a whole new level of productivity, accomplishment and prominence.

This report presents an overview of the many areas in which our faculty, staff and students are working. Their fields of endeavor include biomedicine and biotechnology, engineering, education, social sciences and the arts and humanities.

We are placing special emphasis on marine and coastal issues, biotechnology and contemporary societal challenges—issues that are of the first importance to our state and nation. FAU researchers are already deeply involved in all of them. For example, scientists at FAU's Harbor Branch Oceanographic Institute have long occupied a leadership position in marine and coastal research. A great deal of work related to the environment is taking place University-wide, including a major effort to develop technology to generate clean energy from offshore currents.

FAU's research activities in the life sciences are already yielding important discoveries and will increase with the growth of our new medical school. And our researchers are addressing contemporary societal issues in many ways, with special focus on dealing with the challenges posed by an aging population. FAU is positioning itself as a university that is developing 21st century solutions to 21st century problems.

We are proud of the accomplishments of our faculty and students who are working in all areas of discovery and creativity, and we are excited about the growth that we know lies ahead. We thank our friends in the community who are working with us to take FAU and South Florida into the best of all futures.

MARY JANE SAUNDERS, Ph.D.
President
Florida Atlantic University

FINDING SOLUTIONS THROUGH RESEARCH

The quality and diversity of our basic and applied research are the cornerstones of our academic enterprise. At Florida Atlantic University, we are forging University-wide initiatives aimed at conducting multidisciplinary research and increasing opportunities for external funding.

FAU researchers are seeking ways to unlock secrets of the brain by studying damage and methods of repair. They are working to protect invaluable coral reefs and guard the health of marine mammals. They are striving to create clean energy by utilizing the power of the ocean. And they are reaching out to the community to improve the lives of countless residents in many important and distinct ways. Much of this research holds the promise for innovative solutions to 21st century problems in three key areas—marine and coastal issues, biotechnology and contemporary societal challenges.

Significant growth occurred last year in the amount of sponsored research and the number of graduate degrees awarded. The University's external funding for research surpassed $43 million, representing a 15 percent increase over the previous year. As our funding increased, so did our support for research conducted by our graduate students. During last year, a record number of 1,252 master's and 104 doctoral degrees were conferred.

Our ability to conduct research was significantly enhanced when the College of Engineering and Computer Science opened its $43 million Engineering East building, and Harbor Branch Oceanographic Institute opened its $19 million Marine Science Laboratory II building with 18 state-of-the-art labs.

This report highlights many of the ways in which FAU researchers are helping to advance knowledge and improve life. As we recount and celebrate the research that was conducted this past year, we look forward to finding solutions to the many challenges that lie ahead.

BARRY T. ROSSON, Ph.D.
Vice President for Research
Dean of the Graduate College

U.S. Department of Energy Designates FAU's Center for Ocean Energy Technology as a New National Marine Renewable Energy Center

Researchers and technicians are developing technologies to generate sustainable, low-cost electricity by harnessing the ocean's energy.

Researchers at FAU's Center for Ocean Energy Technology are working to develop ways of generating renewable energy from ocean currents and ocean thermal energy. Recognizing their visionary work, the U.S. Department of Energy has selected the organization as a national center for ocean energy research and development. The new Southeast National Marine Renewable Energy Center at FAU joins centers in the Pacific Northwest and Hawaii that also work to advance the operational readiness of ocean energy technologies. The federal government will fund the center.

"The goals of advancing research and development of open-ocean current and ocean thermal energy systems, and building the capability, infrastructure, and strategic partnerships needed to develop, deploy and test commercially viable ocean energy generation systems, is in direct alignment with the Department of Energy's goal of securing our energy future by producing more domestic, renewable energy," said Susan Skemp, the center's executive director.

FAU is ideally located to oversee the development of technologies that can generate sustainable, cost-effective electricity from the ocean energy resources in the Florida Straits and the Gulf Stream. With this competitively selected investment, the Department of Energy is expanding the nation's assets for testing and deploying innovative new approaches to clean energy generation. Innovative approaches are crucial to addressing climate change and building a strong, renewable energy economy, both in Florida and across the nation.

The center's strategy to accelerate commercial development of marine renewable energy includes technology research and development, testing, environmental research and measurement, policy, regulatory, and economic research, and education and outreach. Researchers there have received more than $17 million from federal, state and industry sources since 2007.

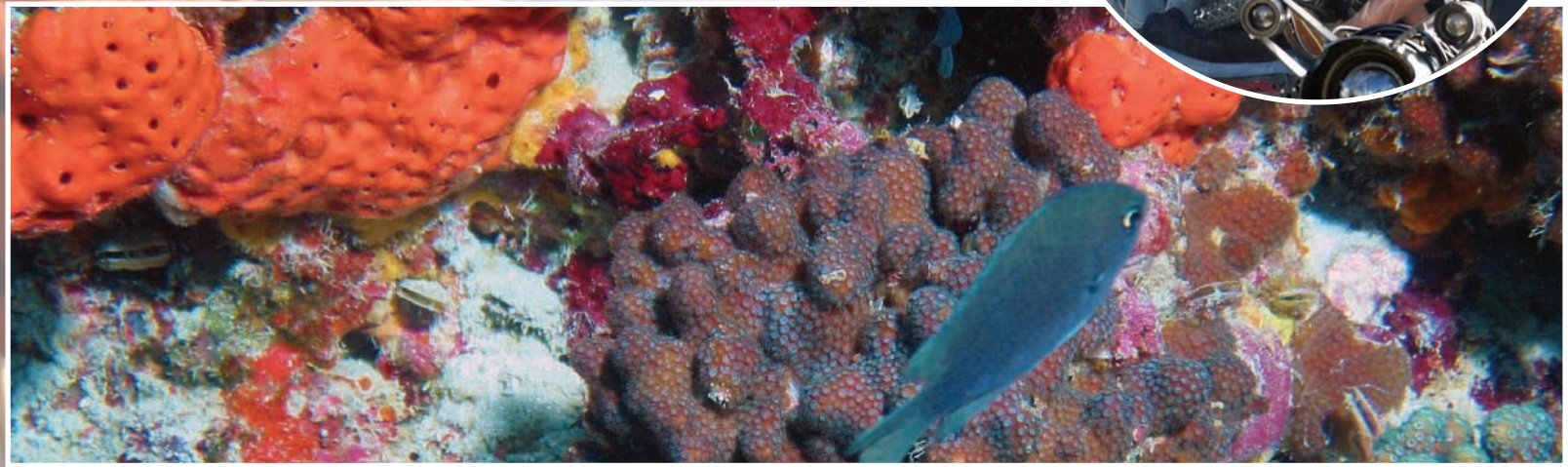
The center will collaborate with industry partners to investigate, refine, fabricate, and test promising next-generation water power technologies to harness the ocean's vast energy potential. Researchers already have begun this work by deploying ocean current observation systems, establishing research on environmental baselines to determine the level of potential effects, and initiating the fabrication of support structures for ocean energy devices.

The center ultimately will perform full-scale field testing of prototype devices—an important step toward the successful development of innovative new ocean energy systems. As a public institution of higher education, FAU will also promote public awareness of ocean energy research and development, and develop curricula for the education of a workforce for this new industry.

NOAA Cooperative Institute's Expeditions Putting Precious Reef Ecosystems on Map

FAU's Harbor Branch Oceanographic Institute is home to the National Oceanic and Atmospheric Administration's Cooperative Institute for Ocean Exploration, Research and Technology, which conducted several research expeditions over the past year under the guidance of Research Professor and institute Executive Director Shirley Pomponi, Ph.D., and Research Professor John Reed, Ph.D.

Locations included Pulley Ridge, a reef complex and marine protected area on the West Florida Shelf, and deep-sea coral habitats off the Florida Keys and along Florida's east coast from Miami to Jacksonville. Significant results of the work include discovery of a deep-water reef off the Keys that appears to be the southern-most living Lophelia reef in continental U.S. waters, and mapping of nearly 100 deep-water coral mounds covered with live Oculina in the 23,000-square-mile Habitat Area of Particular Concern, stretching from Florida to the Carolinas. The efforts of Harbor Branch researchers were essential to this habitat designation.



Scientists have discovered a deep-water reef off the Keys within the 23,000-square-mile Habitat Area of Particular Concern.

Federal Funding for Naval Engineering Produces Innovative Research and Leads to Innovative Ocean Technologies, Career Opportunities

Autonomous unmanned surface vehicles, like the WAM-V catamaran, are being developed with funding from the Office of Naval Research.

Ocean engineering students at Florida Atlantic University will have new opportunities to receive more scholarships, produce innovative research and train for more career opportunities, thanks to additional federal funding for naval engineering.

The Office of Naval Research has awarded the university funds for three long-term research initiatives that involve collaborating with other universities and research centers. FAU's SeaTech campus in Dania Beach and FAU's Department of Ocean and Mechanical Engineering have a long-standing record in conducting naval engineering research in the areas of underwater acoustics, marine materials, hydrodynamics, physical oceanography and autonomous underwater vehicles, which have led to the development of innovative ocean technologies.

"I am involved in several Office of Naval Research-sponsored, cutting-edge, research projects in ocean engineering," said Professor Manhar Dhanak, Ph.D., the director of SeaTech.

"These range from the development of an autonomous unmanned surface vehicle and the development of an autonomous launch and recovery system for deploying AUVs from these surface vehicles, to developing ocean-observing spar buoys, studying the performance of coastal effect ships in the coastal environment and characterizing the electromagnetic fields in the coastal waters using AUVs."

The projects are:

- **Atlantic Center for the Innovative Design and Control of Small Ships**

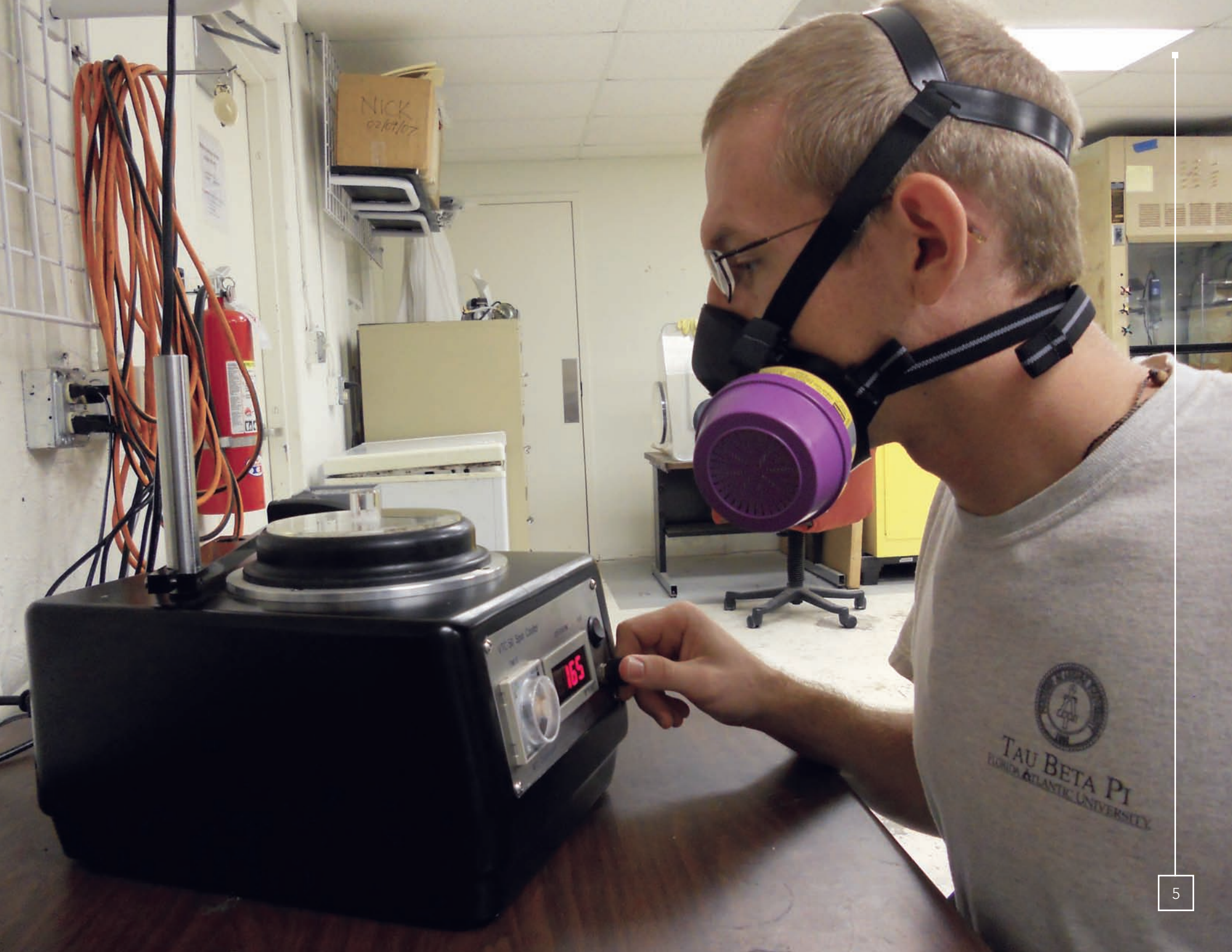
  FAU will receive more than $900,000 over a five-year period to collaborate on developing unmanned, autonomous small surface ships and systems that enable cooperation between these ships and autonomous underwater vehicles. The program will utilize a wave-adaptive modular catamaran (WAM-V) vehicle being developed at SeaTech under an existing Office of Naval Research grant. The international research collaboration, known as the Atlantic Center for the Innovative Design and Control of Small Ships, includes Stevens Institute (as lead), the Naval Academy, the Webb Institute, Naval Postgraduate School, FAU and University College in London.

- **Naval Engineering Education Center**

  FAU will join 13 other universities, led by the University of Michigan, for the Naval Engineering Education Center project to develop and maintain a skilled engineering workforce for Navy laboratories. FAU will receive $1.45 million, and has been awarded an additional project with Tennessee State University to collaborate on researching composite materials that help manufacture lighter but stronger ship hulls.

- **Characterization and Exploitation of Magnetic and Electric Fields in the Coastal Ocean Environment**

  SeaTech has received $705,000 to collaborate with the Navy and Nova Southeastern University to study electromagnetic fields in the coastal environment. The study, based on measurement of magnetic fields in the water column off SeaTech, is aimed at identifying the variability in background electromagnetic noise in coastal waters that affect the detection of electromagnetic signals from man-made sources.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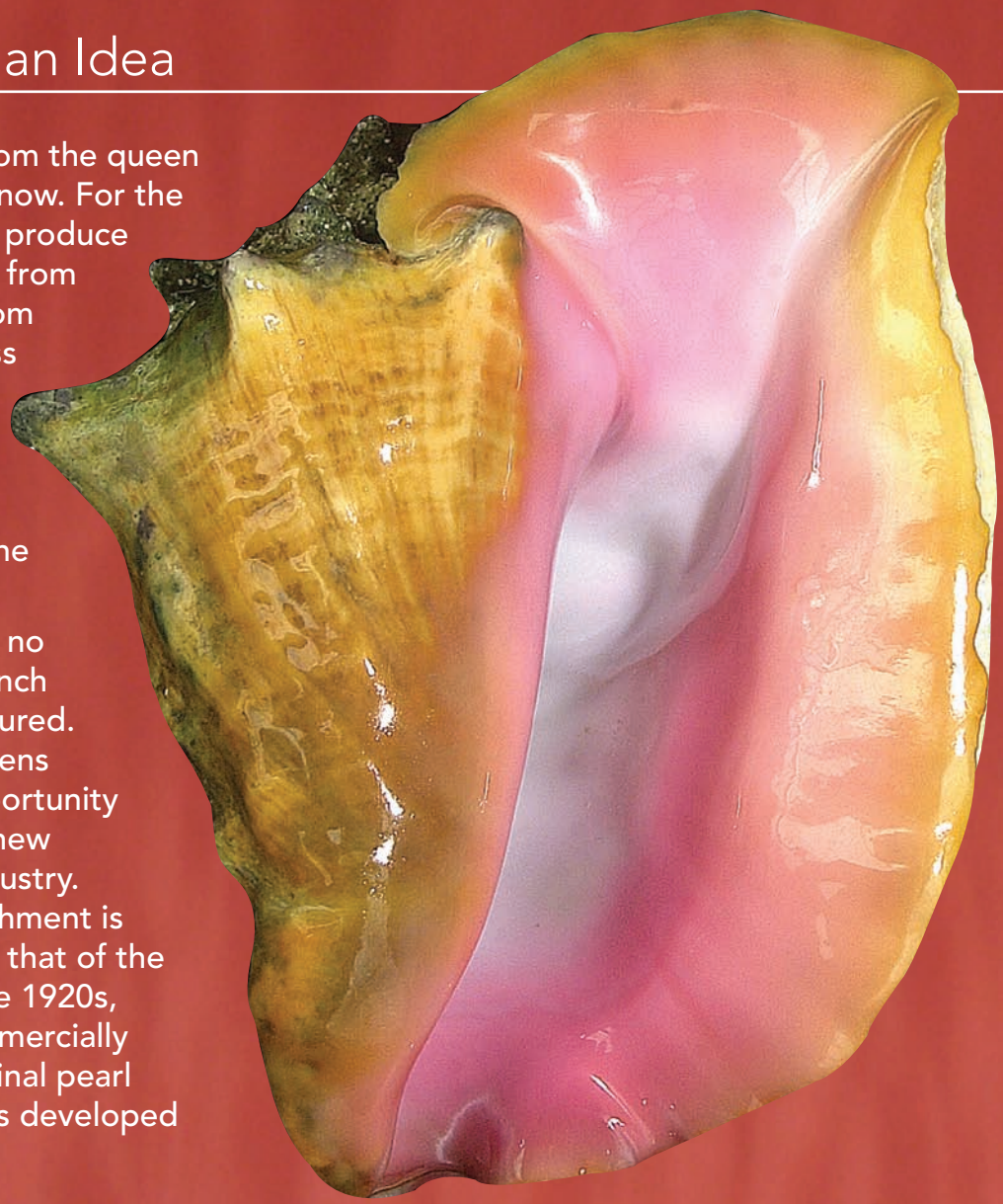
Harbor Branch Develops a Pearl of an Idea

For more than 25 years, attempts at culturing pearls from the queen conch (*Strombus gigas*) have been unsuccessful—until now. For the first time, novel and proprietary seeding techniques to produce beaded, or nucleated, and non-beaded cultured pearls from the queen conch have been developed by scientists from FAU's Harbor Branch Oceanographic Institute. With less than two years of research and experimentation, former Assistant Research Professor Héctor Acosta-Salmón, Ph.D., an aquaculture expert, and Harbor Branch Associate Executive Director Megan Davis, Ph.D., produced more than 200 cultured pearls using the techniques they developed.

Before this breakthrough, no high-quality queen conch pearl had been cultured. This discovery opens up a unique opportunity to introduce a new gem to the industry. This accomplishment is comparable to that of the Japanese in the 1920s, when they commercially applied the original pearl culture techniques developed for pearl oysters.



The new technology has been licensed to Rose Pearl LLC, a company established to bring the pearls to market, and Harbor Branch won a $65,000 State University Research Commercialization Grant from the Florida Legislature through the Florida Technology, Research and Scholarship Board to accelerate commercialization and create a new, Florida-based industry. Rose Pearl matched the grant as a stipulation of the award, and the commerce-research partnership will develop production techniques and explore markets for this new gem. First sales could come as early as 2013.

"As an FAU scientist, it is so exciting to take the research we developed in the lab into a real-world setting," Davis said. "Rose Pearl's philosophy is to produce a high-quality gem while helping to raise awareness of the queen conch's importance to fisheries, ecosystems and local cultures."

The name "rose pearl" was derived first from an island in the Bahamas named Rose Island. After researchers agreed on a name, it occurred to Davis that her grandmother's name was Rose and that her husband's grandmother's name was Pearl. She believed those were good omens for the project's success.

Harbor Branch has been working with the Gemological Institute of America to conduct extensive laboratory testing of the queen conch cultured pearls. In its independent analysis, GIA used techniques that included conventional gemological examination, chemical composition, spectroscopy, spectrometry and microscopy. FAU and GIA plan to jointly publish the results of these trials in an upcoming issue of GIA's scientific journal, *Gems & Gemology*.

Drs. Megan Davis and Héctor Acosta-Salmón, co-inventors of the process, inspect a cultured queen conch that has been successfully seeded for pearl production.

"This is a significant development for the pearl industry, and we were very excited to have the opportunity to closely examine these unique conch cultured pearls in our laboratory," said Tom Moses, senior vice president of the GIA Laboratory and Research. "Several of the pearls we examined are truly top-quality gems. With the equipment and expertise available at the GIA Laboratory, identification criteria are being compiled to separate queen conch cultured pearls from their natural counterparts."

Previous efforts to culture queen conch pearls were unsuccessful, probably because of the animal's sensitivity to traditional pearl seeding techniques and its complex shell. The spiral shape of the shell makes it virtually impossible to reach the gonad, one of the pearl-forming portions in pearl oysters, without endangering the animal's life.

"Perhaps the most significant outcome from our research is that the technique we have developed does not require sacrificing the conch in the process," Davis said. "The 100 percent survival rate of a queen conch after seeding, and the fact that the conch will produce another pearl after the one is harvested, make this culturing process more efficient and environmentally sustainable for commercial application."

Survival of the animal is critical because commercial fishing has depleted the once-abundant wild populations of queen conch and they are now considered a commercially threatened species in Florida and throughout the Caribbean. FAU researchers and Rose Pearl plan to work closely with neighboring Caribbean countries to help ensure sustainability of their commercial fisheries management of the queen conch.

The size of the cultured pearls produced is controlled by the size of the bead and the culture time. Acosta-Salmón and Davis have experimented with culture times from six months to two years; longer culture times may produce larger pearls. The queen conch is farmed in aquaculture tanks, and the queen conch cultured pearls in the initial harvest were grown in an aquaculture facility at Harbor Branch. Queen conchs achieve full size at about three years and have a lifespan of up to 40 years.

Hit Movie Draws Attention to Harbor Branch's Mammal Conservation Work, Dramatic Rescues

Harbor Branch crews are called on several times each year to perform high-risk capture, treatment and release of dolphins in distress, often from becoming entangled in nets.

The profile of the Harbor Branch Marine Mammal Research and Conservation Program rose significantly with the 2011 release of *Dolphin Tale*, a major motion picture dramatizing the rescue and rehabilitation of a young bottlenose dolphin named Winter. Winter lost her tail after becoming entangled with a rope attached to a crab trap and was fitted with a prosthetic one. Scientists from Harbor Branch and other Florida marine research facilities raced against time and long odds to save the life of the dolphin, which was stranded and dying on a sandbar in the northern Indian River Lagoon.

The movie, which grossed more than $81 million before coming out in home video, stars Morgan Freeman, Ashley Judd and Harry Connick Jr.

The conservation program staff, including Program Manager Steve McCulloch and Assistant Research Professor Juli Goldstein, D.V.M., assisted in the rescue and rehabilitation of Winter in 2005. Harbor Branch engineers designed and fabricated a platform used by trainers for rehabilitation work.

The rescue also was featured in the popular iPad application *Wild Dolphins*, which was developed by Harbor Branch, the HBOI Foundation and the design firm Polymash, and released in 2011 to educate the public about the threats that marine mammals face and about Harbor Branch's conservation efforts. Over the past year, at the behest of the National Oceanic and Atmospheric Administration, the program led eight successful interventions requiring high-risk capture, treatment and release of dolphins from life-threatening entanglements.

Wearing a prosthetic tail, Winter swims in her home at the Clearwater Marine Aquarium on Florida's west coast. The wave of publicity created by the her rescue and rehabilitation tripled attendance at the aquarium.

Tracking the Health of Marine Mammals in Florida's Indian River Lagoon

FAU President Mary Jane Saunders joins the effort during the annual physical exam of an Indian River Lagoon dolphin, which was carried out under NMFS Permit No.14352 issued to Dr. Gregory Bossart.

Since 2003, Harbor Branch researchers, including Marine Mammal Research and Conservation Program Manager Steve McCulloch, Assistant Research Professor Juli Goldstein, D.V.M., Affiliate Professor Greg Bossart, V.M.D., and more than 80 collaborators have conducted an internationally recognized program of bottlenose dolphin health and environmental risk assessments in the Indian River Lagoon, yielding more than 50 peer-reviewed publications.

Recent findings indicate evidence of infection among lagoon dolphins with morbillivirus, a pathogen implicated in a number of significant mortality events since the 1980s. The detection of antibodies in the absence of the lesions and mortality typically associated with morbillivirus surprised investigators, and more research is needed to determine the potential implications of this subclinical infection for population health.

Risk assessment data also has characterized elevated levels of mercury in Indian River Lagoon dolphins, and in 2011 Harbor Branch epidemiologist Adam Schaefer and advisor John Reif, D.V.M., initiated a study to assess the presence of mercury in people who consume fish from the lagoon. Much marine mammal research has been directed toward the concept of dolphins as sentinels for human health in the context of disease or environmental exposure. This new work represents an innovative exploration of this connection.

Harbor Branch and the Georgia Aquarium Establish Formal Research and Educational Partnership in Ocean Sciences and Conservation

FAU's Harbor Branch Oceanographic Institute and the Georgia Aquarium have joined forces to tap expertise and resources in ocean sciences and conservation.

"Formalizing the FAU and Georgia Aquarium partnership not only enhances the good research we are conducting together, but also enables us to share with the public the importance of the oceans in our everyday lives," said Megan Davis, Ph.D., the Harbor Branch associate executive director of research.

Among the programs the two organizations have jointly conducted are the Florida Dolphin Health Assessment, which is an internationally recognized effort based at Harbor Branch. Researchers are using dolphins as sentinels or barometers for ecosystem and human health in the Indian River Lagoon, a unique estuary that covers approximately 30 percent of Florida's east coast. Since 2003, under a federal permit, they have examined and released more than 240 dolphins.

As a leader in aquatic conservation and research, the Georgia Aquarium is working with researchers elsewhere to create a better understanding and protection of many species, including whale sharks in Mexico, Belugas in Alaska, spotted eagle rays in Florida and penguins in South Africa. The Georgia Aquarium also operates one of the largest living reef aquariums in the world.

To complement these efforts, researchers at Harbor Branch provide expertise in many areas, such as projects dedicated to marine mammal research and conservation—including a polar research program that uses molecular genetic techniques and satellite-linked telemetry to study the molecular and behavioral ecology of northern temperate and Arctic marine mammals. To address issues related to coral health and disease, and research and conservation, Harbor Branch's Robertson Coral Reef Program focuses on understanding and preventing losses in deep- and shallow-water coral communities.

"My personal experience in working with programs with Harbor Branch Oceanographic Institute in the past has been exceptional," said Dr. Gregory Bossart, senior vice president and chief veterinary officer of the Georgia Aquarium. "Combining the expertise of both institutions means we will truly be able to make a difference in the level of understanding of many unique species of animals in the Southeast."

The Georgia Aquarium in Atlanta is the world's largest with more than 10 million gallons of water and the most extensive collection of aquatic animals. The aquarium promotes the conservation of aquatic biodiversity throughout the world.

Deep-water Sponge May Hold Hope for Stopping Cancer Cell Proliferation

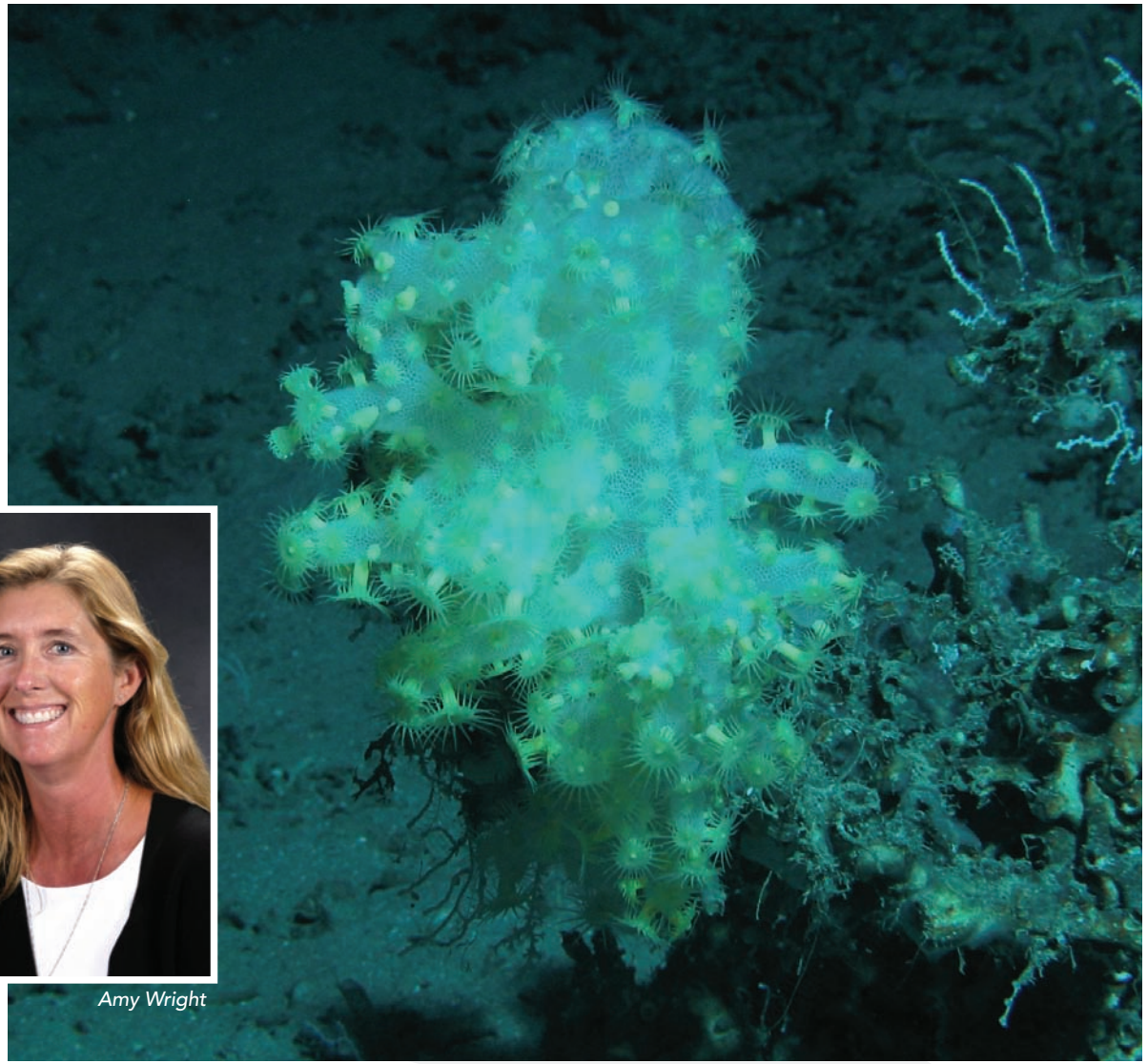
Sometimes a potential cure for a devastating disease might be in your own backyard.

Aphrocallistin, isolated from the deep-water sponge *Aphrocallistes beatrix* collected off Fort Pierce, has been the subject of ongoing work in the Harbor Branch Marine Biomedical and Biotechnology laboratories led by Research Professor Amy Wright, Ph.D., and Assistant Research Professor Esther Guzmán, Ph.D. U.S. Patent 8,058,430 protecting the aphrocallistin technology was issued in November.

Aphrocallistin blocks the proliferation of cancer cells, including pancreatic, breast and colon cancer cells. Although the exact mode of action is not known, aphrocallistin appears to act very early in the cell cycle and has some selectivity for cancer cells bearing a mutation in the p53 protein, a common anomaly in many forms of cancer that drives cancer progression.

Amy Wright

Collaborators at the Sanford Burnham Medical Research Institute in Lake Nona, Fla., have synthesized a series of analogs of aphrocallistin that have been tested at Harbor Branch with funding from the National Oceanic and Atmospheric Administration's Cooperative Institute for Ocean Exploration, Research and Technology and the National Cancer Institute. Some of these analogs are more than 20 times more potent than the natural product and are the subject of a provisional patent application under preparation at Sanford Burnham. Work is ongoing to fully define how aphrocallistin and its analogs kill cancer cells.



The deep-water sponge Aphrocallistes beatrix *appears to have properties that fight several types of cancer.*

First-year medical student Juliet Meir helps conduct a physical exam on an athlete under the supervision of Dr. Carine Porfiri, chief medical officer at Student Health Services.

First Class, with 64 Students, Enters Charles E. Schmidt College of Medicine; Age Range Is 19 to 34, with Several Coming from Non-Scientific Backgrounds

As more than 500 guests looked on with pride, the 64 students who make up the inaugural class of FAU's new Charles E. Schmidt College of Medicine received their first white coats at a ceremony to symbolically confirm their commitment to the profession of medicine. The doctor's white coat has served as the preeminent symbol of physicians for more than 100 years. At the conclusion of the ceremony, the students recited in unison an "oath" they collectively wrote that will serve as a code of conduct to which they are committed to follow throughout their education and as physicians after they graduate.

Dr. Michael L. Friedland, then-vice president for medical programs and dean of FAU's Charles E. Schmidt College of Medicine, addressed the class during the ceremony. "The white coat is our robe of profession and when you wear it, others will expect knowledge, expertise, care and compassion," Friedland said. "You are joining a profession like no other. Listen, explore, examine, inquire, but most importantly, care."

Inaugural class members come from all walks of life, but they share the drive and passion to become physicians and help patients. Among them are a football player, patent lawyer, second lieutenant in the U.S. Air Force, former bio-defense scientist, philosopher, martial artists, musicians, science teacher and the youngest member, who was 19 years old when she enrolled.

The new medical students, the oldest of whom is 34, represent most of the major colleges and public universities in Florida and 20 colleges around the country, including Princeton, Cornell, Vanderbilt, Duke, Notre Dame, Brigham Young, Wellesley and the University of California. Fifty percent are women—just above the national average of 49 percent. Nearly 80 percent of the incoming class is from Florida. Although 75 percent of the class majored in traditional pre-med subjects, the class is also made up of students who have non-science majors such as environmental engineering, Asian studies, English, French, philosophy, business, finance, economics, art history and math. Six of the members of the class have degrees beyond a bachelor's, including one who is a lawyer. Two of the students have extraordinary research backgrounds with multiple publications in peer-reviewed journals and are in the joint M.D./Ph.D. program offered in conjunction with Scripps Florida.

Members of the inaugural class of the Charles E. Schmidt College of Medicine pose after their white-coat ceremony, which reinforced their commitment to medicine.

Five-Year Federal Grant Helps Language Development Laboratory in Davie Continue Studies of Bilingual Children

Florida Atlantic University's language development lab, situated on the Davie campus, has received a five-year, $3.2 million grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development to study language development in English monolingual and Spanish-English bilingual children from the age of 2½ to 5 years.

Erika Hoff, Ph.D., principal investigator for the grant and an FAU psychology professor, has been studying bilingually developing children in South Florida for the last five years. This new study will be the first to study the same children over the course of 2½ years, from the preschool period up to school age. With this study, Hoff hopes to establish what constitutes normal development in the two groups to inform educators and educational policy makers. Another aim of the research is to identify factors that contribute to successful bilingual development.

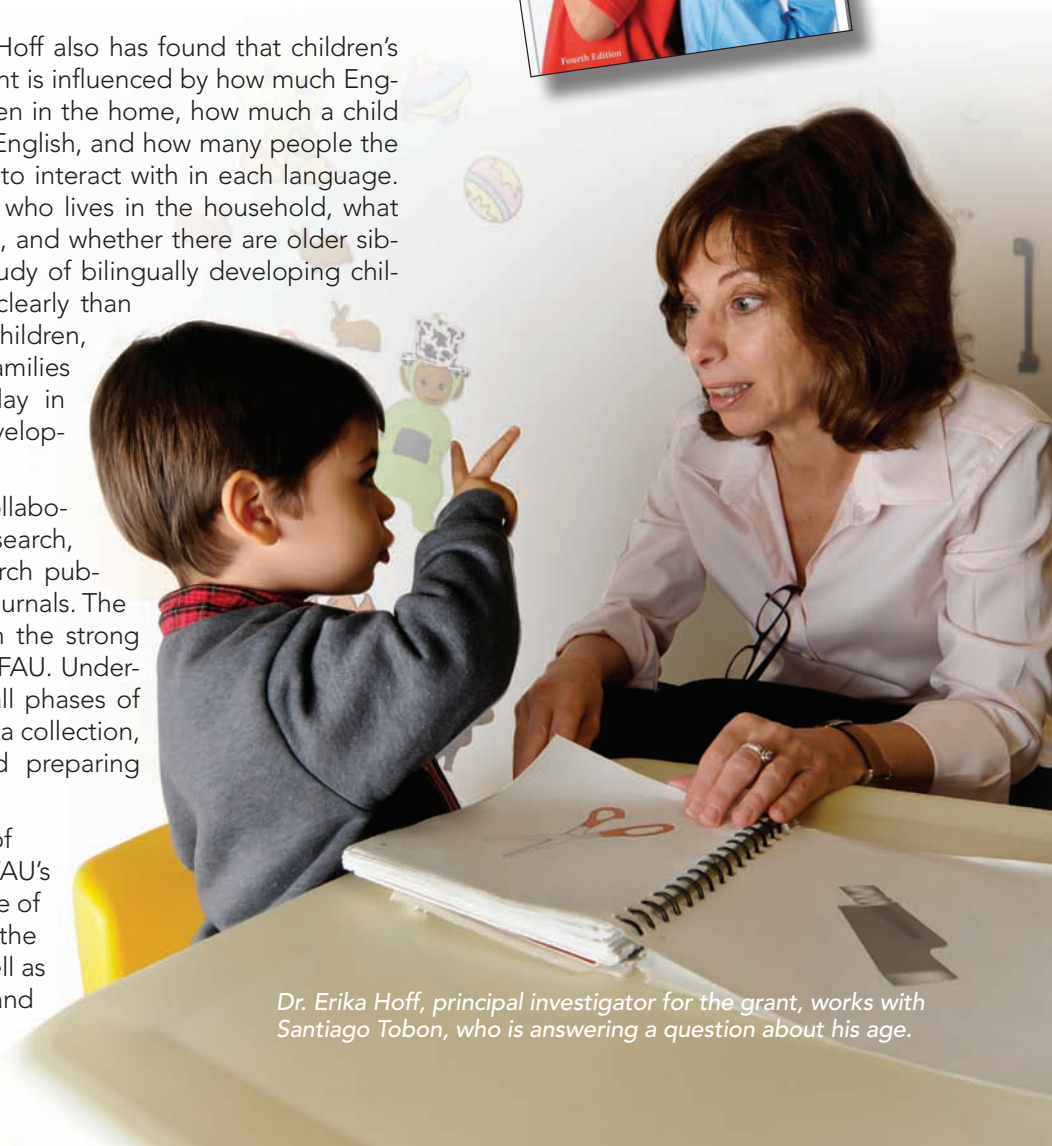
"We're looking at two questions," Hoff said. "First, what kinds of experiences will equip the children to do well in school and have high levels of school readiness? Second, how can children from Spanish-speaking homes retain their heritage language and also acquire the English language skills they need to be successful in school?"

In her previous work, Hoff found that children learning two languages simultaneously acquire language knowledge at the same rate as children acquiring one language, but their language knowledge is distributed over two different languages. As a result, bilingual children look as though they are delayed when only one of their languages is assessed. Hoff argues that teachers, clinicians, and parents need to understand that normal bilingual development does not look the same as normal monolingual development. She says that parents raising bilingual children often worry about whether they are doing the right thing, and this research can reassure them that children are not confused by hearing two languages.

In her previous research, Hoff also has found that children's early bilingual development is influenced by how much English and Spanish are spoken in the home, how much a child is read to in Spanish and English, and how many people the child has the opportunity to interact with in each language. These factors depend on who lives in the household, what their native languages are, and whether there are older siblings in the home. The study of bilingually developing children reveals, even more clearly than studies of monolingual children, the important role that families and early experiences play in children's language development, Hoff said.

FAU graduate students collaborate with Hoff in this research, and have had their research published in top psychology journals. The project also benefits from the strong bilingual student body at FAU. Undergraduates participate in all phases of the research, including data collection, speech transcription, and preparing conference presentations.

Hoff has been a member of the psychology faculty in FAU's Charles E. Schmidt College of Science since 1996, and is the author of five books, as well as numerous book chapters and journal articles.



Dr. Erika Hoff, principal investigator for the grant, works with Santiago Tobon, who is answering a question about his age.

College of Engineering and Computer Science 'Green' Building Puts Community at National Forefront of Energy Conservation

The College of Engineering and Computer Science's innovative, 97,000-square-foot, living-learning laboratory has received LEED Platinum certification, becoming the first academic building in southeast Florida to achieve this status. Other FAU LEED-certified buildings are the Christine E. Lynn College of Nursing, Davie West and the Pine Jog Environmental Education Center.

"This showcase for green practices and technologies provides a strong foundation for our college's broad educational and research efforts to advance the principles of sustainability through the multiple communities we serve," said Karl K. Stevens, Ph.D., former dean of the College of Engineering and Computer Science.

The high-performance facility places FAU, the college and the surrounding communities at the national forefront of energy conservation and environmental stewardship efforts while acting as a catalyst for the creation of more sustainable infrastructures. The dynamic space includes classrooms, teaching labs, meeting rooms, study and workstations, reading lounges, food service venues and recreational and entertainment areas.

The building will serve as an important showcase for "green" buildings, system design strategies and sustainable building management practices. "Engineering on display" is visible throughout the building by way of touch-screen components, allowing access to real-time data collected by sensors and online systems that will be infused into sustainability research projects and courses offered within the college.

Building features that assisted in obtaining the Platinum certification include a server room in which waste heat is captured to control water temperatures for the chilled beam system; high-efficiency lighting systems partnered with solar hot water heating; a 54-kilowatt photovoltaic array; highly reflective "cool roofs" that reduce solar heat gain to the building's interior, reducing cooling requirements; and a roof garden exhibiting native plants irrigated with condensation collected into a cistern from the air conditioning system.

Some $43 million from the state's Public Education Capital Outlay program funded the facility. In addition, a $50,000 planning grant for sustainable design was received from the Kresge Foundation Green Building Initiative.

FAU Receives Five-Year, $5.9 Million Grant Renewal from Department of Children and Families for Child Welfare Workforce Development

Educating and training social workers to properly handle the complex needs of children who are in foster care and those going through the adoption process is a major focus for Florida's Department of Children and Families. To that end, the state has awarded FAU a five-year, $5.98 million grant renewal for a child welfare education program geared toward preparing social work graduates to succeed as child welfare professionals.

FAU is serving as the lead institution of the project, in collaboration with other state schools that are members of the Florida Association of Deans and Directors of Schools of Social Work—Florida A&M University, Florida International University, Florida State University, the University of Central Florida, the University of South Florida and the University of West Florida.

"We are at a time when there are many urgent social problems facing our country and the global world, including poverty, child abuse and neglect, family violence, underfunded schools and social welfare programs, and unemployment," said Michele Hawkins, Ph.D., principal investigator of the Title IV-E Child Welfare Education Program and director and professor of the School of Social Work in FAU's College for Design and Social Inquiry.

"To address the growing needs of our communities and the challenges they are facing, it is critical that we train professionals in the areas of child welfare and other social services. Graduate-level trained social workers provide more mental health services than psychologists, psychiatrists or any other mental health profession in the United States," Hawkins said.

Students accepted into the program will obtain specialized professional training in child welfare with opportunities for post-graduation employment, which will then enable local agencies to hire qualified child welfare professionals. As part of the collaborative nature of the grant, the deans of social work from the participating universities will work with Florida's Department of Children and Families to develop budget, policies and curriculum.

All of the schools will receive money to hire one to two faculty members whose duties include working individually with stipend students and teaching specialized child welfare courses. In addition, the program offers internships in foster care and adoption agencies. After completion of the stipend program, students have a requirement of employment for one year in a child welfare agency.

Hawkins is spearheading the program with Patricia Scott, the statewide program coordinator, and Xiaowen Ma, the statewide budget coordinator at FAU.

Nursing Professor Receives National Institutes of Health Grants to Prevent Substance Abuse by Native American Adolescents

Professor John Lowe R.N., Ph.D., from the Christine E. Lynn College of Nursing, has devoted his research focus to studying the prevention/intervention of substance abuse among Native American youth. "My passion is making sure our youth get the information and have a message of hope," Lowe, a Cherokee Native American, told the *Cherokee Phoenix* newspaper. "This is just one way to be able to give back."

Lowe, one of only 17 Native American nurses with a doctoral degree in the United States, recently received two grants from the National Institutes of Health's National Institute on Drug Abuse to continue his work.

As principal investigator on a two-year study titled "Testing a Substance Abuse Prevention for Cherokee-Keetoowah Early Adolescents," Lowe is examining the feasibility of using innovative, culturally appropriate school-based substance use prevention for Cherokee-Keetoowah sixth-graders as they transition to middle school—a period of high vulnerability.

The second grant, awarded to Lowe and co-principal investigator Professor Eric Wagner, a clinical psychologist in Florida International University's School of Social Work, is funding a five-year research project designed to develop and test a school-based, brief motivational intervention for substance using Native American high school students.

The team is using motivational interviewing, which is a behavioral treatment for substance use problems that has already shown efficacy in some populations. However, this technique's effectiveness for minority populations, and especially Native American populations, has received scant research attention and remains unknown.

"What we do know is that Native American youth, compared with youth from other racial and ethnic backgrounds, are at especially high risk for drug use and drinking, which makes them particularly susceptible to the development of substance use problems," Lowe said. "Dr. Wagner and I believe our proposed study is significant and innovative, and represents an important next step in the development of cross-culturally effective, brief and school-based interventions for drug use and drinking among teenagers."

Living Room Theaters, a Public-Private Partnership, Shows Documentaries and Acclaimed International Films, Serves Students and the Community

FAU's new movie showcase on the Boca Raton campus has been a hit with instructors, students and members of the community. Operated by Living Room Theaters Inc., the theaters are used during the day by FAU's film study program in the School of Communication and Multimedia Studies, while on nights and weekends, the theaters show classic and independent films, emphasizing new releases from around the world. There's also a European-style café that serves gourmet food, specialty coffee, beer and wine.

The public-private partnership was the brainchild of Susan Reilly, Ph.D., former director of the communication school. She found her new business partner quite by accident, when FAU film instructor Mike Budd, Ph.D., met Diego Rimoch on a flight home from the Toronto Film Festival.

Rimoch and his parents, prominent Mexican filmmakers Ernesto and Eva Rimoch, are the creators and owners of Living Room Theaters Inc. Their six-screen art movie complex in Portland, Ore., has operated since 2006, and the family had been looking for ways to expand operations to other cities for the last few years.

"Mike knew that I was looking for the right kind of a partner, so he asked Diego for his card, and Mike brought it in to me," Reilly recalled. The rest is history.

The four 46-seat, all-digital theaters at FAU are accessible from the large, three-story atrium of FAU's new Culture and Society Building. The "high-tech" portion of the theater-classrooms came largely from a $1.5 million donation by the Rimochs and Living Room Theaters Inc. The donation also qualified for matching state funds.

The theaters employ digitizing technology, which enables even first-time directors and producers to distribute their independent films without the prohibitively high costs of making and shipping traditional celluloid prints.

Diego Rimoch waits for the audience to arrive in one of his four all-digital theaters.

Study Shows How Musical Performances Change the Brain

What happens to the brain when a person listens to music? Would someone else's brain react differently than your own? Scientists at the FAU's Center for Complex Systems and Brain Sciences within the Charles E. Schmidt College of Science have prepared a unique study that pinpoints how musical performances "charge up" the brain's emotional and reward-related centers and how musical nuances affect the brain.

Associate Professor of Psychology Edward Large, Ph.D., the principal investigator, and Heather Chapin, Ph.D., the lead author, believe that their study pinpoints how musical performances charge up the brain's emotional centers, and they say that their technique will lead to new ways of studying responses to music and other emotional stimuli.

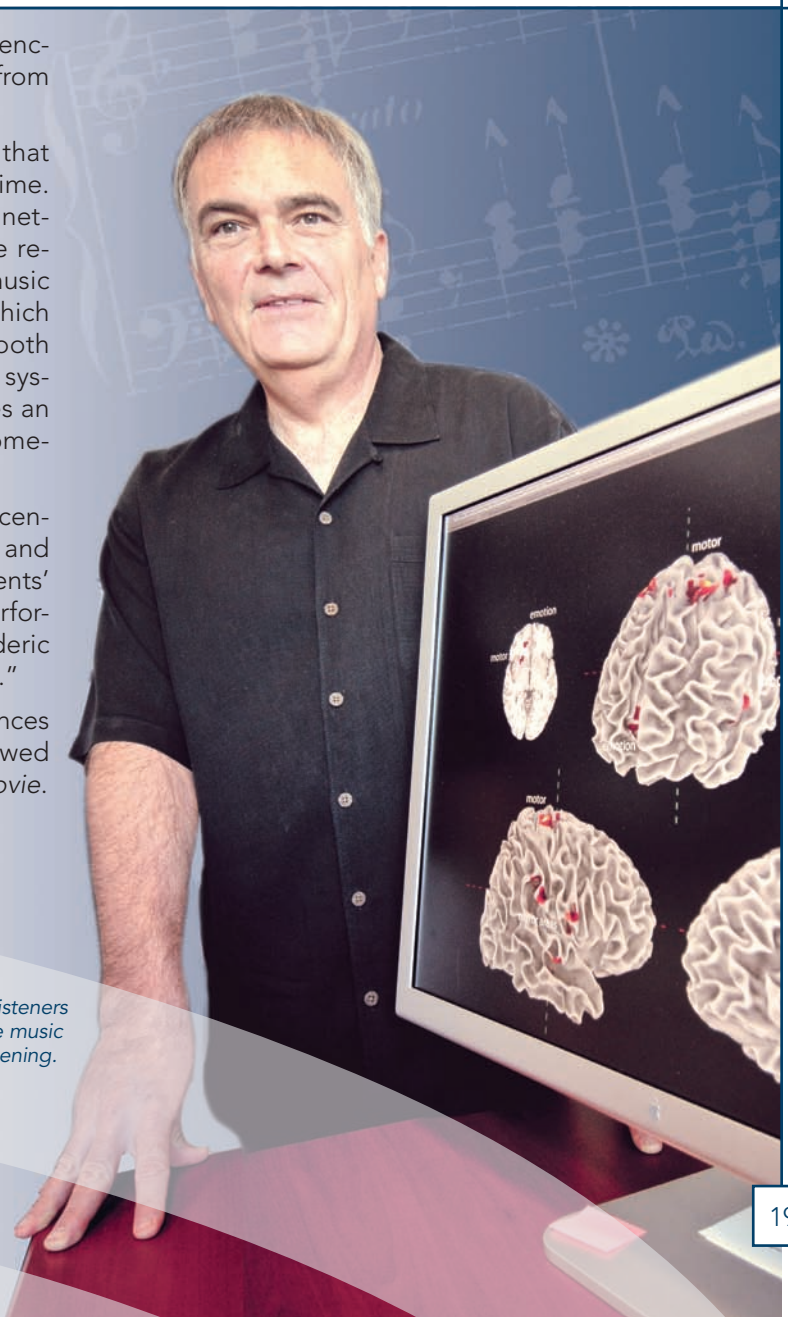
The results from this study have confirmed the hypothesis that the human touch of an expressive performance by a skilled pianist evokes emotion and reward-related neural activity. Also, musically experienced listeners were found to have increased activity in the emotion and reward centers of the brain.

"Our experienced listeners were not professional musicians, but did have experiences performing music, such as singing in a choir or playing in a band," Large said. "The data suggests that experienced listeners get a greater charge out of the music, although we can't say from this data whether the increased neural activation is due to their experience or whether these individuals seek out musical experiences because they derive greater pleasure from music."

The results also revealed neural activity that followed performance nuances in real time. These activations occurred in the motor networks of the brain that are thought to be responsible for following the beat of the music and in the brain's mirror neuron system, which appears to play a fundamental role in both understanding and imitating action. This system is "fired up" when someone observes an action he can do being performed by someone else.

Working with University MRI, an imaging center in the Research Park at FAU, Large and Chapin studied 125 psychology students' responses. Each student listened to performances of the same piece of music—Frederic Chopin's "Etude in E Major, Op. 10, No. 3."

A video of how these performance nuances work in the brain in real time can be viewed at *www.science.fau.edu/video/emotionmovie*.



Dr. Edward Large says experienced listeners appear to get a better charge from the music to which they are listening.

Project Explores Body Art's Impact on Society

Stories on the Skin Tattoo Culture at FAU

The Jaffe Center for Book Arts is one of the true gems at FAU—an exquisite collection of "books as aesthetic objects," as well as a bookmaking studio that includes letterpress, papermaking, workshops, film and live music. What is most important is that rather than just a collection of books on shelves, it is a "center" of culture, of interpretation, of living art, in the heart of the university.

"Stories on the Skin: Tattoo Culture at FAU" begins with the premise, posed by curator Arthur Jaffe, that tattooed bodies are a form of book that can be read and interpreted. Tattoos are primarily a visual medium, but as a living art, they are a collaboration between the tattoo artist, the tattooed person and the rest of the world of encounters, of reactions, of changed circumstances. The permanence of tattoos suggests that their meanings are as fluid as the life experiences of their bearers.

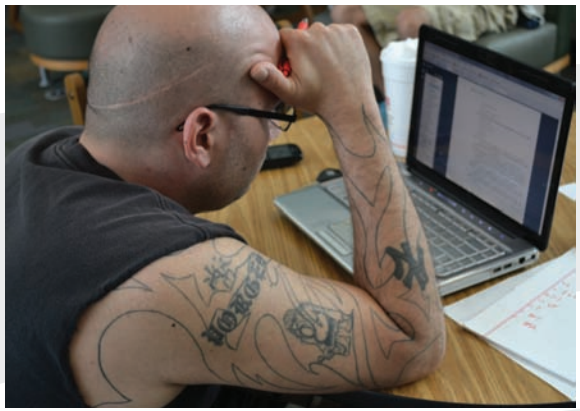
The Stories on the Skin project was designed to engage FAU's diverse student population in an exploration of the social, cultural and artistic phenomenon of tattooing, specifically drawing out the relationships between the images themselves and the complex histories and narratives associated with them. While it involves research, the project is primarily creative, and interpretive.

"As an art historian collaborating with a center committed to books as aesthetic objects, my focus is on a visual medium, the tattoo, which, through interpretation and performance, will offer a deeper understanding of the artful presentation of the self to the world, with the body as canvas," said Assistant Professor Karen Leader, Ph.D., of the Department of Visual Arts and Art History, who headed the project.

During the first phase an anonymous survey—open to all students, tattooed or not—was administered via the MyFAU website. More than 1,100 responses were recorded, collecting both demographic information and opinion data. With the survey and the events leading up to it—including photo shoots, classroom visits and interviews—researchers started a conversation about tattooing as something much more than a fashionable trend.

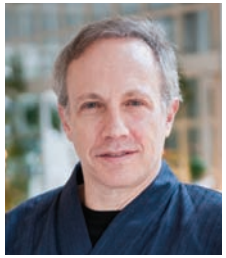
During the second phase, organizers took their show on the road with a photographer and a videographer. The resulting exhibition, Student Body Art, was on view in the Wimberly Library. Students also were invited to send in their ideas, stories and ways of dramatizing or visualizing the experience of being tattooed.

In the third phase, some of those who submitted ideas were invited to participate in workshops to develop their stories for an evening of performances last November. A film about the performances, part documentary and part creative exploration, is to be released this spring.



Philosopher Richard Shusterman Receives Prestigious French Award and Becomes the Subject of a Book Written About His Teachings

During his distinguished career, Richard M. Shusterman, D.Phil., the Dorothy F. Schmidt Eminent Scholar in the Humanities, professor of philosophy and director of the Center for Body, Mind, and Culture has authored more than 10 books (some of which are translated into several languages), edited six books and authored more than 200 scholarly articles, as well as scores of other publications.



Shusterman's research (for which he received a Senior National Endowment of the Humanities Fellowship, a Fulbright and other prestigious grants) ranges widely in the areas of philosophy, culture and the arts, integrating perspectives from European, American, Jewish, African-American and East-Asian studies.

Among the numerous awards for his work, Shusterman was recently given a special medal of honor by the French government for his international academic achievements in innovative and transcultural research—the Ordre des Palmes Académiques (Order of Academic Palms). The order was created by Napoleon to honor eminent members of the University of Paris. In 1866, the scope of the award was widened to recognize contributions to French education and culture made by anyone, including foreigners.

But perhaps the biggest tribute to Shusterman was a recent book about his work—the first detailed study in English devoted to the man its author calls one of today's most innovative thinkers in pragmatism and aesthetics.

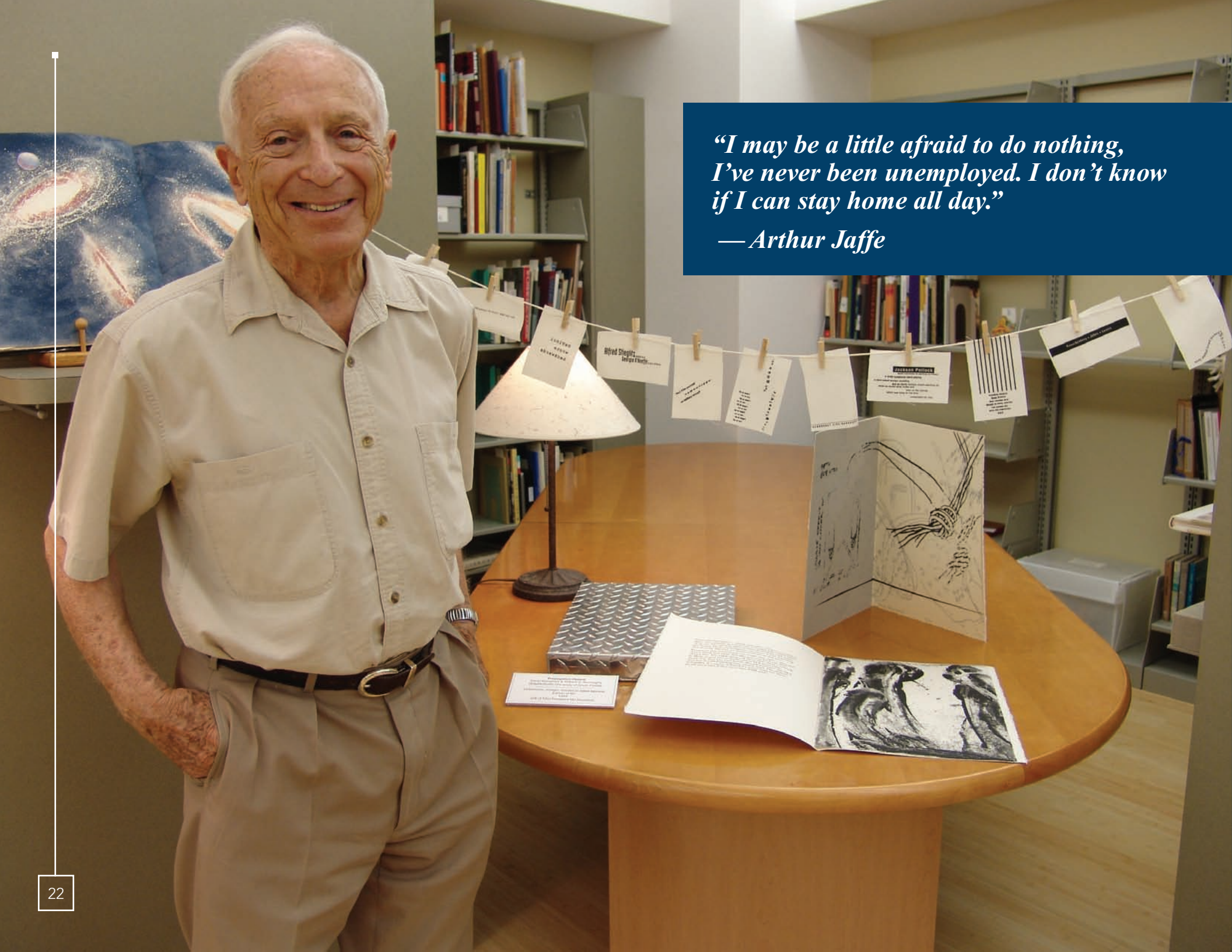
Dr. Richard Shusterman talks about somaesthetics at an art exhibit opening in Beijing.

Embodying Pragmatism: Richard Shusterman's Philosophy and Literary Theory, written by Dr. Wojciech Malecki, a literary theory professor at the University of Wroclaw in Poland, presents a comprehensive account of Shusterman's principal philosophical ideas concerning pragmatism, aesthetics and literary theory (including such themes as interpretation, aesthetic experience, popular art and human embodiment) culminating in his proposal of a new discipline called "somaesthetics."

Shusterman seems as humbled as he is surprised by these two achievements.

"As an undergraduate philosophy student in Jerusalem, and even as a doctoral student at Oxford, I had no connection at all with France and no real knowledge of the language. I never expected to be recognized for contributing to French philosophical culture, and I never dreamed that a book would be written about my philosophical ideas. In fact, I was very worried about finding a university position in philosophy because the job market was tough, as it is now.

"So I decided to work as hard as I could to do research that I felt passionate about, hoping that such passion would translate into results that would earn me a job to continue to pursue my intellectual interests. I've been very fortunate, especially in being appointed as FAU's Schmidt Eminent Scholar in the Humanities."



"I may be a little afraid to do nothing, I've never been unemployed. I don't know if I can stay home all day."

— Arthur Jaffe

Wimberly Library Legend Arthur Jaffe Retires at 90, Receives Honorary Doctorate at Commencement

A legend at FAU's Wimberly Library has closed the book at age 90, but left behind a priceless collection and a bevy of friends and well-wishers. And before Arthur Jaffe retired, he received an Honorary Doctorate of Humane Letters at commencement last spring.

Jaffe transformed a private collection of artists' books into one of the nation's most prominent centers for books handmade by artists, founded the Arthur and Mata Jaffe Center for Book Arts and became its curator.

And even in retirement, he still pops up at the library to complete some unfinished projects.

"I may be a little afraid to do nothing," he said with a laugh shortly after his farewell party. "I've never been unemployed. I don't know if I can stay home all day. I can't play tennis anymore."

Arthur Jaffe officially bid farewell to FAU, but his friends and associates still expect to see a lot of him around the Wimberly Library.

Jaffe and his late wife, Mata, made an initial donation of 2,800 artists' books to the library in 1998. Over the years, it has developed into a bustling cultural center that houses 12,000 rare books, many of them one-of-a-kind. The center is also a venue for concerts, film screenings, exhibitions, workshops and classes—all of which are open to the public.

"Arthur Jaffe is a living treasure at Florida Atlantic University," President Mary Jane Saunders said after she presented him with his honorary doctorate. "His lifelong interest in books as works of art has made him one of the world's leading experts in this fascinating field.

"FAU is so fortunate to not only have the honor of housing his priceless collection of books, but also to have had the great pleasure of his personal participation in the life of the university for many years. He will always be a valued member of the FAU family."

Jaffe came to the Wimberly Library as a volunteer in 1994 and worked there for four years before donating the books. Behind him were distinguished careers as a World War II Army captain in charge of a unique combat military intelligence unit from 1942 to 1946, a partner in a department store chain for 30 years, and a leader in many local and national community organizations.

With the expansion of the library in 2007, the Jaffe collection became the core of the new 4,800-square-foot center, largely funded by a substantial gift that Mata Jaffe earmarked for that purpose before her death in 2001. Jaffe also served as the Ario S. Hyams Professor, an endowed position at FAU Libraries, until December 2010.

Klezmer Company Orchestra Takes Music from Shelf to Stage

The Klezmer Company Orchestra holds the distinction of being the only professional ensemble-in-residence at an academic library in the United States. Aaron Kula founded the orchestra in 1997 to showcase FAU Libraries' print music collections of more than 30,000 scores through concerts and educational presentations.

Kula composes new orchestrations by remixing old melodies with contemporary musical ideas that represent a wide range of genres including jazz, classical, folk and American music. Kula has transformed over 300 works for the concert hall—literally taking the music from "shelf to stage."

The orchestra features accomplished jazz and classical musicians with core soloists and section musicians. The size of the ensemble varies based on the program presented and activities include two annual grand concerts at FAU's Carole and Barry Kaye Auditorium—the *Spirit of America* concert in June and a World Music concert in March, which is the "main event" of the Libraries' *Kultur Festival*. The orchestra also completed a successful multi-city Southwest tour in spring 2011, performing at prestigious venues in San Diego, Tucson and Phoenix.

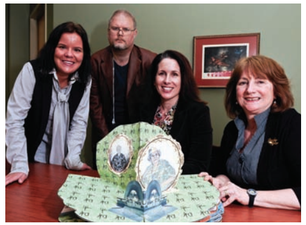
During 2010-11, musicians arranged, composed and edited 21 new pieces for orchestra, representing approximately 300 pages of orchestral scores and 700 pages of instrumental parts. Some 100 pages of piano-vocal sheet music from FAU Libraries' Print Music Collection provided the source material for these 21 new orchestral works.

The orchestra also performed an additional 16 concerts on and off campus, attended three studio sessions to record music for its latest CD, *Klezmerology*, and presented two educational workshops in collaboration with FAU's College of Education for Palm Beach and Broward county early childhood educators.

A new shelf-to-stage website (*www.shelftostage.com*) details the library, performance and educational activities with the print music.

Collaborative Effort Looks at Lives of Survivors from Pearl Harbor, Hiroshima Bombings

Patricia Liehr, Ph.D., R.N., and LisaMarie Wands, Ph.D., R.N., both faculty members in the Christine E. Lynn College of Nursing, have collaborated with colleagues from the Tokyo Metropolitan Institute of Gerontology—Ryutaro Takahashi, Chie Nishimura and Mio Ito—to understand how people survived the bombings of World War II. They examined stories of health shared by 23 survivors from Pearl Harbor and 28 from Hiroshima. The members of this research team came from countries that exerted aggression on each other within the expanse of five years during World War II. The study sought to identify turning points that moved participants along over a lifetime marked with the trauma of wartime bombing. Through ongoing efforts of Dr. Ryutaro Takahashi, the study has been funded by the Japanese Ministry of Health. Findings from the research appear in the journal, *Advances in Nursing Science*.



The project team, from left: Katy Morris, Andrew Binder, LisaMarie Wands, Patricia Liehr.

"Wartime trauma exerts a toll that challenges the human spirit for both aggressors and sufferers of aggression," Liehr said. "We found that a central turning point for Pearl Harbor survivors was 'honoring the memory and setting it aside.'" For Hiroshima survivors, it was "becoming Hibakusha (A-bomb survivor)," a lifelong journey of living with the effects of A-bomb exposure.

Common themes revealed the surprise of being attacked; approaches used to persevere in the immediate aftermath and throughout more than six decades; and hopes and dreams for peace, both personal and global. Survivors expressed a concern that their stories touch younger generations to discourage aggression and to promote peace. Regardless of experience or nationality, participants endured wartime trauma by connecting with others and pursuing personal and global peace.

"Sharing stories is especially important now to people who lived through World War II trauma, as they are elders whose numbers are quickly dwindling as they advance into the eighth, ninth and tenth decades of living," Wands said. "Wisdom of survivors can inform future generations."

As a result of their findings, the team's long-range goal has become dissemination through collaboration with FAU colleagues in the arts. Katy Morris, a doctoral student in FAU's Dorothy F. Schmidt College of Arts & Letters, is developing a documentary/verbatim play for her dissertation. The play is being written as a dramatic expression of the story of health since surviving the bombings of World War II. It is intended for middle and high school youth, and will contain lessons related to history, social science and health. It is to debut this fall at FAU and at the Morikami Museum near Delray Beach, and in spring 2013 at venues in Japan.

Andrew Binder, a multimedia instructor in the College of Education at FAU, is developing a multimedia presentation that shares the research in an accessible and educational way. He also is creating an iPad program and has completed War and Health, a pop-up artist's book to capture the essence of the project.

"Our hope is that the performance, the iPad program and the artist's book will allow us to touch audiences that may not access health-related research," Liehr said. "Through this science-art collaboration, we are moving to disseminate interdisciplinary, cross-national research through artistic expression. By using a range of dissemination approaches, we expect to provide health promotion and guidance for people living with aggression today."

The Florida Planning Living-Lab Network, an Initiative by a Graduate Student

Living-labs, short for living laboratories, are a new global phenomenon that has moved the act of knowledge creation and research from the four-wall laboratories to portions of the territory. The term living-lab has three connotations: a participatory and dynamic research method, the setting where the research takes place and the project that takes place in this setting.

Under the tutelage of Jaap Vos, Ph.D., director of the School of Urban and Regional Planning in the College for Design and Social Inquiry, Mariana O'Brien, a doctoral student, is conducting research on living-labs and public administration. As a result, the Florida Planning Living-Lab Network program has been launched.

A program of the Veritas Initiative at the FAU School of Urban and Regional Planning, the living-lab brings together researchers, industrialists, policymakers and end-users at the beginning of the innovation process. Living-labs move research out of laboratories into real-life contexts to stimulate innovation and allow citizens to influence research, design and product development.

The Florida Planning Living-Lab Network is developing two funded projects: the Abacoa Living Laboratory and the Wellington 2060 Living-Laboratory.

The Abacoa Living Laboratory is being conducted in partnership with FAU, the John D. and Catherine T. MacArthur Foundation and the Abacoa Partnership for Community. It includes three projects: a visitor center, biomedical business development and development of metrics of new urbanism.

The Wellington 2060 Living Laboratory is a three-year effort in collaboration between the village of Wellington and FAU. The projects correspond to the eight concepts for the future developed in the Wellington 2060 vision statement. They will be handled individually and according to the village's priority order: equestrian community, medical arts district, housing reinvestment, town center, village center, Main Street, flex zoning district and sustainable development projects.

Doctoral student Mariana O'Brien and Dr. Jaap Vos study a map and projections for the village of Wellington, which look at the equestrian community, medical arts, housing reinvestment and several other factors.

Addressing a Rapidly Changing Climate

The oceans cover more than 70 percent of the Earth's surface, and rising sea levels have the potential to impact more than 2 billion people who live along the coastlines around the world. From threats to marine organisms and to water supply, ocean acidification, storm surge and hurricanes, Florida is on the front line of climate change impacts in this country. These impacts, and our nation's energy crisis, will continue to require new, innovative research, as well as creative solutions. FAU's strengths in hydrology, engineering and ocean sciences will play a major role in designing solutions to address a rapidly changing climate.

Led by Leonard Berry, Ph.D., distinguished professor and director of the Florida Center for Environmental Studies, and Marguerite Koch, Ph.D., professor in the Department of Biological Sciences of the Charles E. Schmidt College of Science, the collaborative program called "Research, Engineering and Adaptation to a Changing Climate" combines the expertise of researchers in biology, engineering, geosciences, marine sciences and social sciences.

Together, they are poised to tackle the current status of climate change and its projected impacts. A focal point of the research will address approaches for minimizing these impacts, which are expected to affect the natural and man-made environments. The program has three key themes: human system problem assessment and sustainability through reengineering and adaptation; natural system assessment and technology development; and climate change coordination, education and outreach.

During its first year of operation, the Climate Change Initiative was awarded $1.2 million in grants from the Florida Department of Transportation, the National Aeronautics and Space Administration, the U.S. Geological Survey, the State University System and FAU's Division of Research.

The project teams involved in funded research represent three colleges: the Charles E. Schmidt College of Science, the College of Engineering and Computer Science and the College for Design and Social Inquiry.

Dr. Marguerite Koch, above right, and Dr. Leonard Berry, focus on different aspects of a changing climate. Berry, for example, is looking at the effects of climate change on hydrological supplies in Southeast Florida. Koch is looking at increased levels of carbon dioxide in the ocean and the effect on algae.

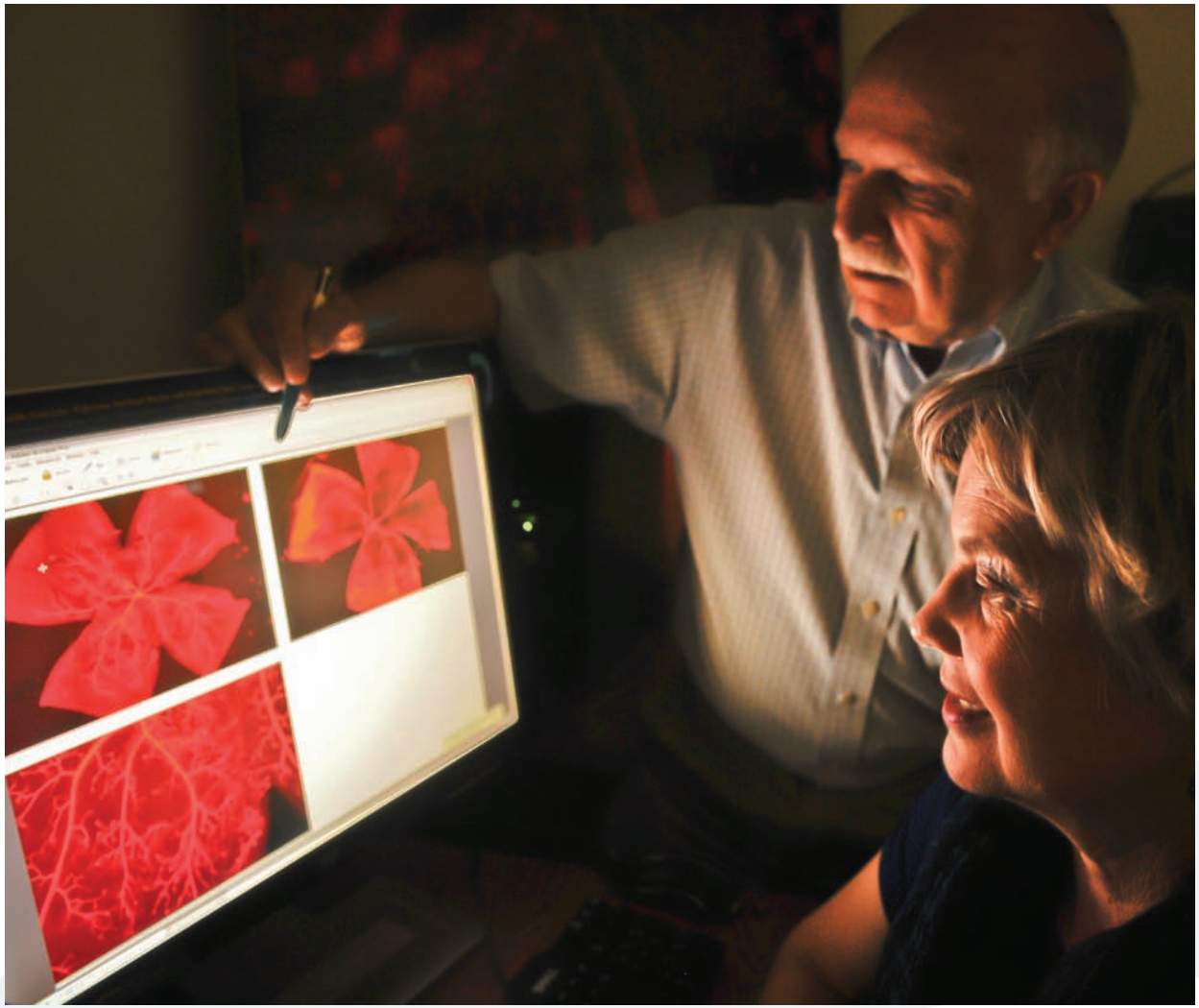
Brain Function: Studying Damage and Seeking Methods of Repair

Millions of Americans suffer from neurodegenerative disorders, including Alzheimer's and Parkinson's diseases. The financial and social implications of these conditions are vast, and they impact Florida in particular because of the state's aging population.

Led by Janet Blanks, Ph.D., professor and director of the Center for Complex Systems and Brain Sciences, and Rod Murphey, Ph.D., professor and chair of the Department of Biological Sciences in the Charles E. Schmidt College of Science, the project brings together FAU neuroscientists, biologists and biomedical students. They will establish a neuroscience consortium with Scripps Florida and the Max Planck Florida Institute, both based at FAU's John D. MacArthur campus in Jupiter.

Researchers from the consortium will study the relationship between oxidative stress—damage to cells caused by free radicals or oxidants and chemicals—and brain dysfunction to develop better treatments and therapies to repair the brain after disease or injury. Oxidative stress plays a major role in the etiology of neurodegenerative diseases, including Alzheimer's, Parkinson's, stroke (or brain injury) and epilepsy.

The project, titled "Brain Function, Damage and Repair," has established a critical mass of investigators to study oxidative stress by using various approaches and model systems. Blending resources and knowledge will give FAU a leading edge in both basic science efforts and the translational aspects of these neuroscience studies.



Drs. Janet Blanks and Rod Murphey head a project that brings together neuroscientists, biologists and biomedical students as part of a consortium to devise better treatments and therapies to treat the brain.

Researching Ways to Age Better

Dr. Ruth Tappen

The Christine E. Lynn College of Nursing and Charles E. Schmidt College of Medicine are heavily engaged in projects and studies that explore improvements in quality of life and quality of health care services for older adults.

Recently, the interdisciplinary team received funding via an FAU research priority award to begin a longitudinal study that will focus on the keys to successful aging in the older population in the South Florida region.

Ruth Tappen, Ed.D., R.N., professor and Christine E. Lynn Eminent Scholar in the Christine E. Lynn College of Nursing, and Dr. Joe Ouslander, M.D., senior associate dean of geriatrics and professor in the Department of Biomedical Science of the Charles E. Schmidt College of Medicine, are leading the study. The research team, which includes investigators from eight colleges, plans to access older individuals from four ethnic groups—two immigrant and two nonimmigrant—who are living in older adult communities in Palm Beach, Broward and Miami-Dade Counties.

The team values the opportunity to immerse themselves in these communities to talk with and learn from four specific groups: fourth generation European-Americans and African-Americans and first generation Afro-Caribbean and Hispanic-Americans.

Dr. Joseph Ouslander

"We are deliberately taking advantage of South Florida's diverse population to look at a broad range of characteristics and perspectives on the experience of growing older," Tappen said.

One hypothesis they will be testing is whether immigrants tend to be healthier and more resilient than those who have lived in the United States for generations. The team will seek answers to questions such as:

- How does the impact of aging differ between cultures?
- How does it differ between immigrants and those who have been here for generations?
- Do diverse cultures have the same goals and the same wishes as they age, or are they different?

The study results will bring health care professionals a step closer to understanding the science of how people can live better and longer; what health care professionals can do to contribute to quality aging; and what older people and their caregivers can do to enhance the quality of their aging.

FAU faculty and students and others can utilize the data from registry participants, allowing the users to collaborate on new and innovative interdisciplinary studies. Leveraging combined resources, this initial project is aimed at establishing an institute and center on aging, which would perpetuate the use of the registry for further collaborative research projects.

FAU Researchers Help Study Effects of Gulf of Mexico Oil Spill

FAU researchers joined forces with other experts to examine the impact of the Deepwater Horizon oil spill on the Gulf of Mexico. The Florida Institute of Oceanography Council selected 27 projects from among 233 proposals submitted by 20 member institutions and reviewed by top scientists from around Florida. FAU has spearheaded three and collaborated on another of the selected projects, which range from investigating the effect of the Deepwater Horizon oil and dispersants on reefs, corals and salt marshes to examining how coastal and marine food webs, from plankton to sharks, fared in the disaster.

Research on all four of the projects involved FAU's Harbor Branch Oceanographic Institute or the Charles E. Schmidt College of Science.

One project focused on the toxic contaminants from the oil spill that threatened nearby coral reef ecosystems, such as those among the Florida Keys. Understanding the impacts of oil and dispersants on coral health is critical for developing management strategies to reduce or mitigate coral loss.

In another project, researchers examined the impact of the oil spill on the seafood industry, not only with respect to mortality of important commercial species, but also as a result of closures of fishing grounds and oyster beds. The goal of this research was to determine the effects of oil and the dispersant, Corexit, on the mortality, development and growth of three ecologically and economically important invertebrate species from the Gulf of Mexico.

A third project obtained baseline data on oyster reefs and the biodiverse communities associated with oysters along the Florida Gulf Coast. Studies in this project included assessment of pre-spill conditions in oyster habitats from the Panhandle through extreme South Florida, collection of data and cataloguing survival and growth in areas where different degrees of oil-related impacts occurred, and determining pre-spill levels of genetic diversity.

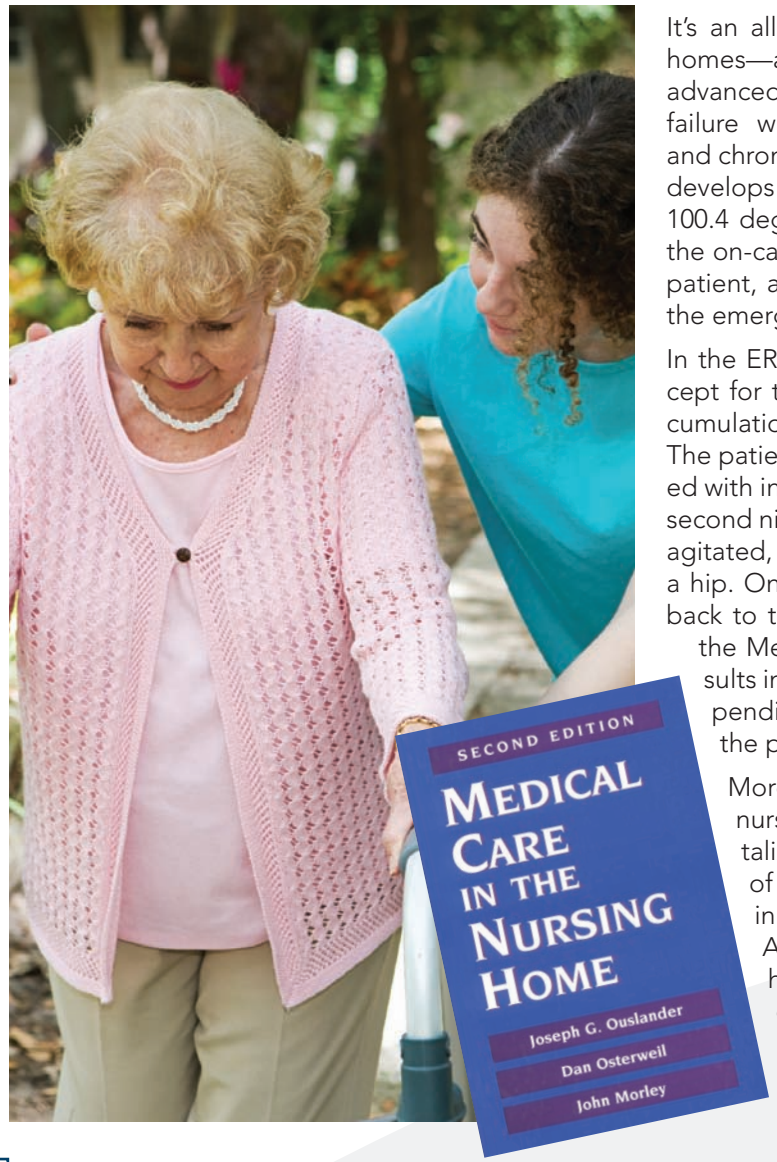
Another research team used "sentinel" sponge species to assess the impact of oil contamination on western Florida shelf reefs. Researchers from FAU, working with other universities, compared archived samples from a collection at Harbor Branch and freshly collected sponges of the same species from the Gulf of Mexico directly impacted by the oil spill.

FAU is a member of the Oil Spill Academic Task Force established by State University System Chancellor Frank T. Brogan to provide assistance to local, state and federal agencies in dealing with the Gulf of Mexico spill and its aftermath. Leading FAU's efforts on the task force was Leonard Berry, Ph.D., director of the Florida Center for Environmental Studies, housed at FAU.

Graduate students were among the team members who helped assess damage from the Deepwater Horizon disaster.

Researchers from Harbor Branch were among top scientists who studied the aftermath of the massive oil spill in the Gulf of Mexico after the Deepwater Horizon platform exploded and burned.

Helping to Prevent Readmissions of Nursing Home Elderly to Hospitals



It's an all-too-common scenario in U.S. nursing homes—a 90-year-old resident with moderately advanced Alzheimer's disease, congestive heart failure with severe left-ventricular dysfunction and chronic pain from degenerative joint disease develops a nonproductive cough and a fever of 100.4 degrees Fahrenheit. The night nurse calls the on-call physician, who is not familiar with the patient, and is instructed to send the patient to the emergency room.

In the ER, the patient has normal vital signs except for the low-grade fever and a possible accumulation of fluids that appears on a chest X-ray. The patient is admitted to the hospital and treated with intravenous fluids and antibiotics. On the second night, the patient becomes confused and agitated, climbs out of bed and falls, fracturing a hip. One week later, the patient is discharged back to the nursing home with coverage under the Medicare Part A benefit. This episode results in approximately $10,000 in Medicare expenditures, and discomfort and disability for the patient.

More than 1.6 million Americans live in nursing homes, and these types of hospitalizations are common. Hospitalizations of frail nursing home residents can result in higher costs, complications and death. According to the "Revolving Door of Rehospitalization from Skilled Nursing Facilities," a paper published in the January 2010 issue of *Health Affairs*, 23.5 percent of Medicare beneficiaries discharged from the hospital to a skilled nursing facility were readmitted to the hospital within 30 days at a cost to Medicare of $4.34 billion in 2006.

"There is an alternative to this scenario," said Dr. Joseph G. Ouslander, M.D., senior associate dean of geriatrics in the Charles E. Schmidt College of Medicine at FAU and co-author of the article, "Reducing Unnecessary Hospitalizations of Nursing Home Residents," in a recent issue of *The New England Journal of Medicine*. "By using a standardized protocol and working with an on-call nurse practitioner who visits the nursing home daily, the patient can be treated in the nursing home without any complications and only costing Medicare about $200."

Using such care in nursing homes nationwide could improve care, reduce complications from hospitalizations, and eliminate hundreds of millions of dollars in Medicare expenditures annually.

Ouslander and co-author Dr. Robert A. Berenson, senior fellow at the Urban Institute in Washington, D.C., explain that although many nursing home residents could be cared for safely and effectively without being admitted to the hospital, the causes for preventable hospitalizations in this population are complex.

They note that one of the fundamental problems with hospitalizations of this population is not clinical. Rather, it is financial and stems from a misalignment of Medicare and Medicaid. State Medicaid programs do not benefit from savings that Medicare accrues from prevented hospitalizations of nursing home residents, even though

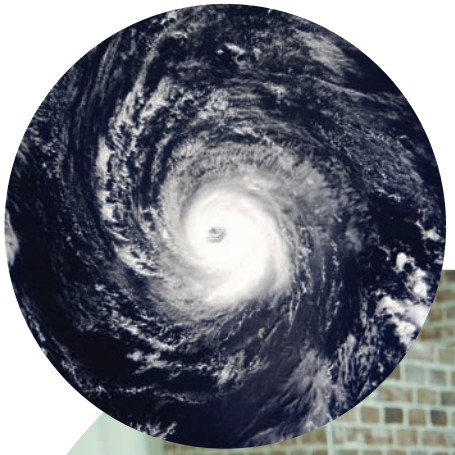
"There is an alternative to this scenario." — Dr. Joseph G. Ouslander

the nursing home incurs expenses when managing changes in condition without hospital transfer. Nursing homes have a financial incentive to hospitalize residents who have Medicaid coverage, because after a three-day inpatient stay, the resident may qualify for Medicare Part A payment for post-acute care in the nursing home at three to four times the daily rate paid by Medicaid.

Interventions to Reduce Acute Care Transfers (INTERACT) is one such program that shows promise and provides the necessary tools to enhance the nursing home's ability to identify, evaluate and manage conditions before they become serious enough to necessitate a hospital transfer. Developed by Ouslander and his collaborators in FAU's Christine E. Lynn College of Nursing, INTERACT was implemented at 25 community-based nursing homes in Florida, Massachusetts and New York over a six-month period and resulted in a 17 percent reduction in hospital admissions among the residents. The reduction was even greater in homes that were more engaged in implementing the INTERACT intervention.

"If implemented widely, the program could result in fewer complications, lower morbidity from hospitalizations and reductions in Medicare costs. Some of the savings could be used to support improved care in U.S. nursing homes," Ouslander said.

Ultra-High-Tech Simulators Train Medical Volunteers for Major Hurricanes



For nearly half a century, the airline industry has successfully used flight simulators to train pilots. Today, simulation is playing an increasingly important role in medicine. FAU's Charles E. Schmidt College of Medicine's Simulation Centers create realistic clinical scenarios by using life-sized computerized patient mannequins that help provide advanced training to healthcare professionals for emergencies.

The centers recently trained members of Broward and Palm Beach counties' Medical Reserve Corps to respond in the event of a major hurricane event in South Florida. During a catastrophic event, such as a category 3 or 4 hurricane, hospitals can be deluged with various medical emergencies. Also, catastrophes can overwhelm the capabilities of first responders, particularly during the first 12 to 72 hours. Reserve Corps volunteers, including medical and public health professionals, provide an important "surge" capacity during this critical period. They also can augment medical staff shortages at local medical and emergency facilities.

Medical personnel "treat" life-sized computerized patient mannequins to prepare for a real mass casualty incident in South Florida.

Communities often need medically trained individuals and others to fill in the gaps in their emergency response plans and to improve their response capabilities. There are approximately 1,800 volunteers in Broward County and 1,100 in Palm Beach County, many of whom have now trained at the Simulation Centers.

"We used our lifelike computer controlled mannequins to create four separate scenarios for training," said Mark Goldstein, senior director of the Simulation Centers. "Participants responded to a patient falling through a ceiling, experiencing a heart attack, suffering from chronic obstructive pulmonary disease, and one who was very panicked and distressed."

During the scenarios, participants also performed advanced CPR and used an automated external defibrillator.

The centers apply state-of-the-art human mannequin technology to train and certify healthcare providers. Since the situations are simulations, participants can learn from their mistakes without risk to patients. They then can use this knowledge in real-life situations.

The centers are situated in two locations—the Research Park on the Boca Raton campus and at the Mollie Wilmot/Palm Healthcare Pavilion in West Palm Beach. They resemble real-life emergency rooms, with two stations for patient treatment. The rooms are fully equipped with gurneys, monitors, IV poles, defibrillators, blood pressure cuffs, simulated oxygen ports and all the equipment and supplies that are required to respond to medical emergencies.

NIH Grant Supports Research into Eye Repair Systems and Diseases

Dr. Marc Kantorow seeks to understand how mutations in key genes cause multiple eye and vision diseases.

Professor Marc Kantorow, Ph.D., of the Department of Biomedical Science in the Charles E. Schmidt College of Medicine, received a renewal of his four-year grant from the National Institutes of Health's National Eye Institute for "Molecular Analysis of Microdissected Human Lenses" for $1.3 million. This will enable him to continue his research into eye repair systems and eye diseases.

Kantorow has successfully renewed this grant twice in the last seven years as an FAU faculty member for a total of approximately $3 million in NIH grant support to FAU.

He is seeking to understand how mutations in key genes cause multiple eye and vision diseases—from cataracts to age-related macular degeneration. He and his laboratory staff have discovered that mutations in multiple genes disrupt multiple critical eye functions that range from autophagy, a process by which cells recycle damaged components, to protein repair.

Kantorow's work recently was published in the *American Journal of Human Genetics*, *PLOS One*, *FASEB* and other prestigious journals, and it has been used as a basis for highlighted science articles including *Nature Reviews* and *Science Direct*.

Kantorow has regularly served on NIH and other important national and international scientific review and program planning committees. He was elected as a Fellow of the Association for Research in Vision and Ophthalmology, which is the leading vision research society with more than 14,000 members.

Research Associate Professor Lisa Brennan, Ph.D., works with Dr. Kantorow, focusing on the contribution of oxidative stress to diseases of the aging eye.

Business Plan Competition Brings Out the Best in Entrepreneurship

Since 2009, FAU's Adams Center for Entrepreneurship and the College of Business have hosted the annual Business Plan Competition each spring. Participating teams can meet and network with experienced venture capital principals, early stage angel investors, successful entrepreneurs and senior business leaders who serve as judges.

The competition has grown appreciably over the past three years. In the first year, 64 teams registered to compete for a total of $33,000 in cash and in-kind prizes, such as office space and office supplies. In year two, some 100 teams registered for a chance to win a total of $125, 000 in cash and in-kind prizes. And in 2011, the number jumped to 167 teams, and the competition truly became a springboard to entrepreneurial success.

The 2012 FAU Business Plan Competition will provide an opportunity for participants to test their business ideas and compete for a total of more than $200,000 in cash and prizes. The competition will include for the first time a high school track with a four-year scholarship to FAU as top prize.

Sukhsagar Jolly, left, holds his winning check, flanked by Scott Adams, for whom the Adams Center for Entrepreneurship is named; Kimberly Gramm, director of the Adams Center; and Ralph de la Vega, chief executive of AT&T Mobility.

Individuals or teams may submit an innovative business plan in one of three categories: the Entrepreneur Track, which is designated for alumni and members of the business community at large; the FAU Student Track, which is open to current FAU students only; or the High School Student Track, which is open to current juniors and seniors from local community high schools.

In 2011, Sukhsagar Jolly won the community track portion for his prototype, Biofont. Jolly's concept is a device that will detect Methicillin-resistant Staphylococcus aureus antigens and anti-MRSA antibodies in nasal fluid, giving an instant, yes-or-no reading on whether an individual is either carrying MRSA bacteria or is infected with them. The product can serve hospitals for staff, visitor, and patient screening, especially those in contact with the immunocompromised, the immunosuppressed, seniors and infants.

Arturo Devesa won the student track portion in 2011 for his prototype, Medwhat.com, which automatically answers health and medical questions, and acts like a virtual doctor on the Internet. It uses the power of information technologies and the already existing knowledge of medicine and health on the Internet to provide answers to questions about conditions, diagnosis and treatments.

Research Highlights

Juyoung Park Receives Award From Prestigious Scholars' Program

Juyoung Park, Ph.D., an assistant professor in the School of Social Work, was among the 11 geriatric social work researchers to receive a two-year award from the prestigious Hartford Faculty Scholars Program to provide career development, mentorship and support for projects that will improve health outcomes for the country's aging population.

The program is funded by the John A. Hartford Foundation and administered by the Gerontological Society of America as a component of the nationwide Geriatric Social Work Initiative, which seeks to expand the training of social workers to improve the health and well-being of older people and their families.

"After participating in this program, our hope for our Hartford scholars is that they become exemplars of successful leadership in gerontological social work and applied research, and that they serve as inspirations, guides, and mentors for other social workers interested in similar career trajectories," National Program Director Barbara Berkman said.

Park's research interests focus on non-pharmacological pain therapies in older adults with chronic pain—for example, cognitive behavioral therapy, yoga, touch therapy and water exercise. She is particularly interested in conducting intervention studies to identify effective pain interventions for ethnically diverse older adults.

The 2011 scholars are examining such topics as therapies for post-traumatic stress disorder in aging Vietnam War veterans, resident-to-resident aggression in nursing homes, patterns of service use for older adults with mental health disorders, care transition experiences of veterans and non-drug-based approaches for pain management.

Research Park Thrives Under New Name, New Leadership

With a new name and new leadership, the Research Park at Florida Atlantic University—headed by Chief Executive Officer Andrew Duffel—contains 22 technology and research and development companies that support almost 800 on-site jobs paying an overall average salary of $86,176 a year. That's nearly twice the average salary in Broward and Palm Beach counties. Among the recent highlights:

Research Park tenant Predator Systems Inc. was acquired in January 2011 by Curtiss-Wright for $13.25 million, demonstrating the value of technologies and products developed over the years in the park. Curtiss-Wright management is now working closely with the research park to identify new research and other joint projects with the College of Engineering and Computer Science and the College of Business.

ArchieMD Inc., another successful research park tenant, was awarded a Phase 2 matching grant by the Florida Research Commercialization Matching Grant Program. ArchieMD Inc. develops education software for the general public and medical professionals, including a comprehensive body of 3-D life science models and visualizations.

RESEARCH PARK AT FLORIDA ATLANTIC UNIVERSITY

The Matching Grant Program is administered by the Florida Institute for the Commercialization of Public Research, a statewide agency and also a resident of the research park. The program was created by the Florida Legislature during the 2010 session. By matching federal research money received by small businesses in Florida through Phase I and Phase II awards from the Small Business Innovation Research and the Small Business Technology Transfer programs, this funding enables companies to produce the kind of distinctive technologies and associated jobs that are driving today's knowledge-based economy.

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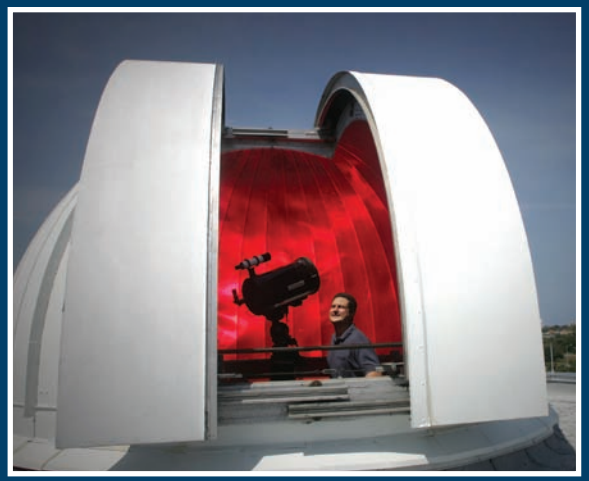
The research park's Technology Business Incubator is an important asset to entrepreneurs emerging from FAU, which includes its students, recent graduates and faculty. The incubator gives them a location in which to base their company while remaining close to the facilities of the University, and access to outside sources of knowledge and input. The incubator was renamed the C. Scott Ellington Technology Business Incubator in December 2010 to honor the late Scott Ellington's contributions to developing a sustainable and nurturing environment for entrepreneurs.

An exciting technology is emerging from incubator resident LinguaSys, a next-generation language translation software company dedicated to creating the best experience for enterprises that need a secure and highly customized solution for translations of collaboration content. Last July, LinguaSys announced the development of its new product: the TGMobile translation application for iPhones, along with TGPhoto to translate foreign text. TGPhoto allows users to take a picture of foreign words with their iPhone and translates the text instantly in over 50 languages.

A new arrival, Pivotal Therapeutics, is a publicly traded company in Canada that established its U.S. office for commercialization and market development at the research park last June. The company is focused on developing new medical foods and supplements to treat cardiovascular disease and is creating collaboration agreements with the Charles E. Schmidt College of Science and the Charles E. Schmidt College of Medicine.

Astronomical Laboratory Offers Free Viewings to the Public

FAU's Astronomical Observatory has opened to the public for free viewing of the night sky on the first Friday and third Tuesday of each month, beginning at 7 p.m. The observatory is situated on the fourth floor of FAU's Science and Engineering building.



The Department of Physics in the Charles E. Schmidt College of Science, through a FAU Tech Fee Grant, recently made significant improvements to the observatory. A new and higher quality telescope and equatorial gear system are now operational, and there's a new internalized vibration dampening design created by machinists Mark Royer and Jeff Webb and Eric Vandernoot, the astronomy and physics lab coordinator.

For visitors, Vandernoot highlights points of interest in the sky and shows videos related to some of each night's targeted celestial objects. He focuses on nebulae, the moon, planets, stars, galaxies, comets and asteroids. Using spectroscopy, or the study of the interaction between matter and radiated energy, Vandernoot can examine the composition of a star and its atmosphere.

"Technology not only allows us to see more stars, but we are becoming increasingly aware of more sun-like stars which have planets, including terrestrial or Earth-like planets," Vandernoot said. "Being able to analyze the color of a star with the telescope is the key to astronomy of today. I want guests to appreciate the science, enjoy what the observatory has to offer and see what's out there."

For the public viewing schedule, visit *www.physics.fau.edu/observatory/about_ob.html*.

Graduate Students Establish Speech Program with Rwanda

Graduate students in the speech pathology and audiology program in FAU's Department of Communication Sciences and Disorders have established a program with the Republic of Rwanda to offer speech and language services to its citizens.

Using Skype webcam video, the graduate students teach "accent reduction therapy" to Rwandan businesspeople to improve their English pronunciation so that they can conduct business with Americans.

"Rwandans learn British English, and the idioms, vocabulary, tone and stress patterns of British English are quite different from American English," said Dale Williams, Ph.D., professor of communication sciences and disorders. "The therapy is helping the Rwandans to better understand Americans and be understood by them."

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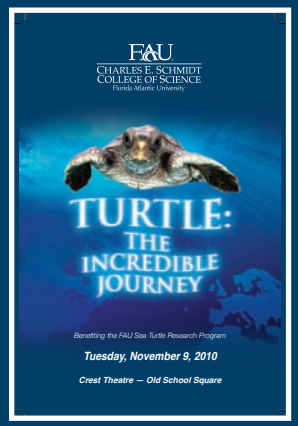
Williams was a Peace Corps volunteer who taught in Ghana in the early 1980s. The speech therapy program with Rwanda was established through the Koinonia Foundation, a nonprofit organization that provides solar power to schools, medical care and other services begun by Williams' father, Dr. Dale Williams.

Professor, Students Help Create *Turtle: The Incredible Journey*

An FAU professor and several graduate students, as well as Gumbo Limbo Nature Center staff members and volunteers, were instrumental in creating the film, *Turtle: The Incredible Journey*.

This film was directed by Emmy Award winner Nick Stringer. Jeanette Wyneken, Ph.D., associate professor in FAU's Department of Biological Sciences and co-director of the FAU Sea Turtle Research Program, served as the scientific advisor for the film. Significant segments of the movie were shot at area beaches and coastal waters of Palm Beach County.

Filmed from the viewpoint of the turtle, the movie traces the 25-year journey of a hatchling loggerhead turtle as it grows to maturity while following the migratory path of its ancestors thousands of miles across the Atlantic Ocean. She then returns to the beaches of South Florida as a mature female who nests close to where she began life as a hatchling many years earlier. The odds were stacked against her—just one in 10,000 turtles survive the journey.



The film blends breathtaking cinematographic artistry with scientific inquiry and research. Several loggerhead turtles that had been part of the FAU Sea Turtle Research Program had starring roles.

Grant Will Assist Planning for Future Nurse Leaders

Rose O. Sherman, Ed.D., R.N. an associate professor in the Christine E. Lynn College of Nursing, has received an $827,000 grant from the Health Resources and Services Administration for a three-year study titled, "Succession Planning for the Future: A Nursing Administration Master's Degree for Emerging Leaders." The project co-leader is Susan Dyess, Ph.D., R.N., an assistant professor in the College of Nursing.

"Healthcare agencies in South Florida and the Treasure Coast anticipate the exodus of 50 percent of their current nurse leaders in the next decade," said Sherman, who is director of the Nursing Leadership Institute at FAU. "This grant will further enable us to focus on the development of nurses early in their careers who are interested in a nursing leadership career path."

Through the Nursing Leadership Institute, Sherman and Dyess collaborate with hospitals and healthcare agencies throughout South Florida and the Treasure Coast to identify nurses for the College of Nursing master's degree Nursing Administration Specialty Emerging Leaders track. Upon graduation, the nurses are prepared to assume roles such as chief nursing officer or nurse manager when existing leaders retire.

"Awarding this grant demonstrates that the federal government recognizes the critical importance of preparing the next generation of nursing leadership," said Marlaine Smith, dean of the College of Nursing and Helen K. Persson Eminent Scholar. "This program will address the anticipated nursing leadership shortage. We commend Drs. Sherman and Dyess for their vision and dedication to developing solutions to address this challenge before it becomes a crisis."

Graduate Students Create Applications for the iPhone

Three graduate students in FAU's College of Engineering and Computer Science created iPhone applications that recently received approval by Apple Inc. Through a project for their iPhone programming class within the college, students built a Twitter client and an interactive iPhone application incorporating the FAU campus map and other university features.

"We want to equip Florida Atlantic University students to compete in this huge mobile de-

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velopment market," said Oge Marques, Ph.D., associate chair in the Department of Computer and Electrical Engineering and Computer Science. "These applications were created with hard work and dedication, and are part of the new exciting technological initiatives our college is attempting to lead."

Student Waazim Reza created iFAUInfo, Rodrigo Gloria created My Campus Buddy and Rafael Giusti created FAU MAP. The free applications provide useful information, such as an FAU Boca Raton campus map with building descriptions, FAU contact information and official FAU Twitter updates. Each is available for download at the App Store, where Apple provides a database for applications designed for the iPhone.

The course, taught along with experienced iPhone application developer Jeremy Jacob, founder and CEO of AtomicUnit Software and alumnus of the college, is designed to give students a hands-on means to develop real-world applications for the growing demand for mobile device applications.

Cyberbullying Expert Presents Data at White House Session

President Obama convened the first-ever White House Conference on Bullying Prevention last year, focusing largely on the critical role that research plays in informing policy and practice by giving the "national stage" to distinguished researchers and experts.

Sameer Hinduja, Ph.D., associate professor in FAU's School of Criminology and Criminal Justice, and his colleague, Justin Patchin, an associate professor of criminal justice at the University of Wisconsin-Eau Claire, were invited, and their groundbreaking research on cyberbullying was prominently featured and praised. They were asked to write a white paper on the topic for the White House, which is available at *www.stopbullying.gov/references/white_house_conference*.

Hinduja continues to work extensively with federal and state departments of education on this and other issues of teen technology misuse.

State Grant Will Help Create Neuroscience Cluster in Jupiter

FAU has received $300,000 through the state's New Florida Initiative to establish a neuroscience cluster based on the John D. MacArthur campus in Jupiter with emphasis on research and graduate education.

Since 2009, scientists from FAU's Charles E. Schmidt College of Science have been working jointly with FAU's Charles E. Schmidt College of Medicine, the College of Engineering and Computer Science, the Harriet L. Wilkes Honors College and scientists from the Max Planck Florida Institute and Scripps Florida to create a hub for world-class research and training programs targeted specifically in neuroscience. The focal point of this project will be a core facility for teaching electrophysiology to train a new generation of neuroscientists.

Students, Alumni Build Prototype Marine Mammal Necropsy Table

Students from FAU's College of Engineering and Computer Science and alumni from the College of Business have designed a hydraulic table prototype for marine mammal necropsies to benefit marine mammal researchers at Harbor Branch Oceanographic Institute in Fort Pierce.

Jason Immerblum and Armand Buono, engineering students in the college's Innovation Leadership Honors Program, along with recent business graduates Robert Fox and Chris Rosser, collaborated on the project, which was built at Harbor Branch's machine shop during the spring 2011 semester.

"The new marine mammal necropsy table will enhance examination capabilities and eliminate the fatigue factors of the various investigators who invest many hours in making determinations about a marine mammal's life history and cause of death," said Juli Goldstein, D.V.M., staff veterinarian and assistant research professor at Harbor Branch.

Harbor Branch's researchers often conduct necropsies on various sea mammals, including sea otters, manatees, sea lions, dolphins and whales. Dubbed "Whale of a Table" by the students, the device will allow for height adjustment and possible tilting which will make conducting necropsies significantly easier for the staff of the Marine Mammal Research and Conservation program at Harbor Branch. In addition, the new table will feature pull-out drawers and smaller tabletops to assist in photographing and measuring organs.

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The original design was created in the entrepreneurship assistance project class taught by Jean McConnell, an adjunct professor in the College of Business. The project will continue in the sustainable engineering and eco-design class taught by Chaouki Ghenai, Ph.D., an assistant professor of mechanical engineering in the College of Engineering and Computer Science.

Vaccine and Gene Therapy Institute Becomes a Partner

FAU and the Vaccine and Gene Therapy Institute of Florida in Port St. Lucie have agreed to collaborate on research, education, and training. The collaborative research will focus on novel cancer therapies, gene therapy and virus research that includes the study of the HIV virus, and the role of the immune system in cancer. The collaboration also will involve sharing facilities and equipment, co-hosting joint seminars and preparing joint grant applications to state and federal agencies.

"This interaction will contribute to the growth of the biotech workforce needed to meet the growing demands of the region," said Ramaswamy Narayanan, Ph.D., associate dean for research and industry relations in the Charles E. Schmidt College of Science. "Our graduate students will work hand-in-hand with top faculty from VGTI to gain state-of-the-art experience in vaccines and gene therapy research. The collaboration can also help our undergraduate students through internships, and faculty will have an opportunity to work with VGTI scientists."

FAU's multidisciplinary doctoral program in integrative biology within the Charles E. Schmidt College of Science is said to be the first to interact with VGTI, whose research employs integrative biology and "computational biology" using mathematical and computational approaches to address biological questions to tackle human health issues in immunology.

"All of our faculty/principal investigators come from academic backgrounds and wish to continue to work in an academic environment," said John Schatzle, Ph.D., director of scientific affairs for VGTI. "We have opportunities to both contribute to graduate education, and also benefit from a partnership whereby our faculty can continue their academic careers and can also mentor and train Ph.D. or M.S. students directly in their labs on thesis or dissertation projects."

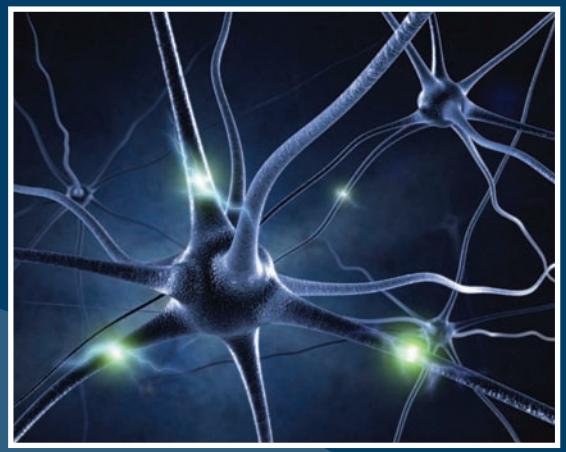
FAU's Center for Molecular Biology and Biotechnology, Charles E. Schmidt College of Science, Charles E. Schmidt College of Medicine, the College of Engineering and Computer Science and the College of Business will participate in the collaboration with VGTI.

Integrative Biology Program Teams with Max Planck

FAU's integrative biology doctoral program has teamed up with Max Planck Florida Institute in Jupiter to create a program in integrative biology and neuroscience. The program will award a Ph.D. in integrative biology with the emphasis on neuroscience. In addition to the FAU-Max Planck faculty, several affiliate neuroscience faculty from Scripps Florida and Torrey Pines Institute for Molecular Studies in Port St. Lucie will provide opportunities for post-baccalaureate work.

Comprehending the full function of the brain, in health and disease, requires the understanding of sub-cellular processes in single neurons, signal integration by the brain and cognitive function. The neuroscience faculty in the program will tackle many of the cutting-edge questions in neuroscience through the integration of multiple disciplines, different model systems and a broad spectrum of technologies.

Rotations through various research labs in the first year, combined with core courses in integrative biology, scientific communication and statistics and a broad variety of elective courses in neuroscience, allow students to receive training in practical and theoretical neuroscience.



CENTERS AND INSTITUTES

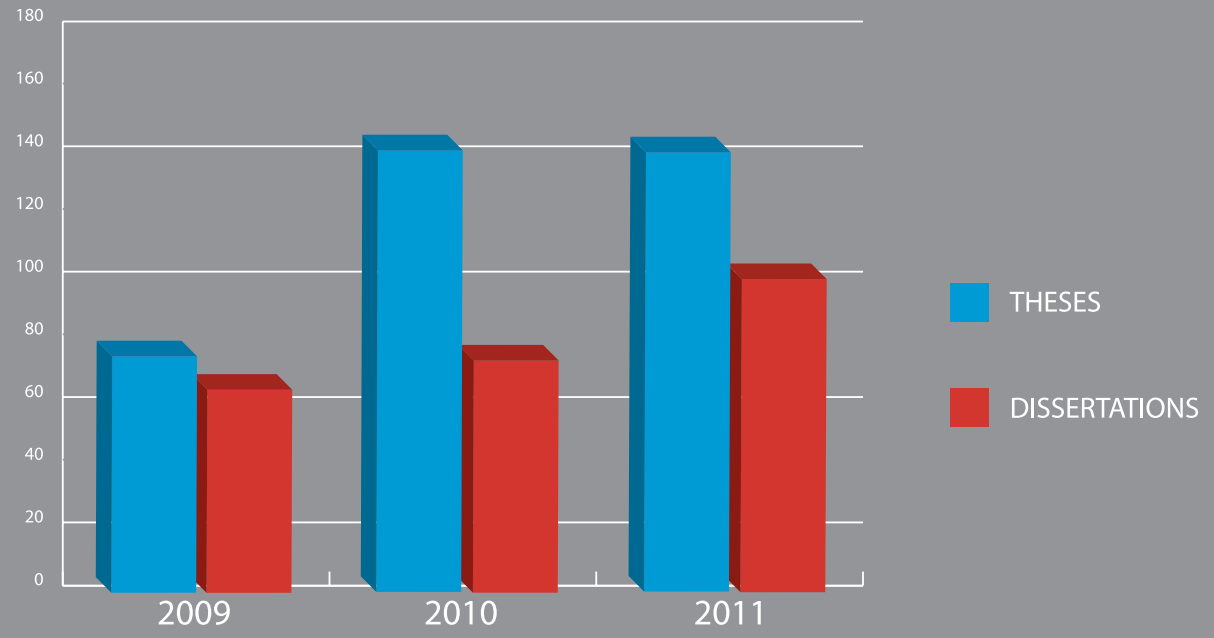
FAU

Adams Center for Entrepreneurship
Carl DeSantis Business and Economics Center
Center for Acoustics and Vibrations
Center for Advancement of Distance Education Technologies
Center for Biological and Materials Physics
Center for Complex Systems and Brain Sciences
Center for Conservation and Architectural & Cultural Heritage
Center for Cryptology and Information Security
Center for Economics Education
Center for Holocaust and Human Rights Education
Center for Hydrodynamics and Physical Oceanography
Center for Infrastructure and Constructed Facilities
Center for Intermodal Transportation Safety and Security
Center for Marine Materials
Center for Marine Structures and Geotechnique
Center for Molecular Biology and Biotechnology
Center for Rare and Genetic Neurological Diseases
Center for Services Marketing and Management
Center for Systems Integration
Center for Women, Gender, and Sexuality Studies
Child Welfare Institute
Christine E. Lynn Center for Caring
Community Justice Institute
Ernest O. Melby Community Education Center
Florida Center for Environmental Studies
Institute for Ocean Systems and Engineering
Intensive English Institute
International Center for the Advancement of Political Communication and Argumentation
Public Procurement Research Center
Quantum Foundation Center for Innovation in School and Community Well Being
Teaching and Leadership Center at Florida Atlantic University
The Center for the Study of Values and Violence after Auschwitz
The Center for Urban Redevelopment & Education
The Disability Center
The Lois and Anne Green Memory and Wellness Center


KIMTECH

By the Numbers

THESES AND DISSERTATIONS



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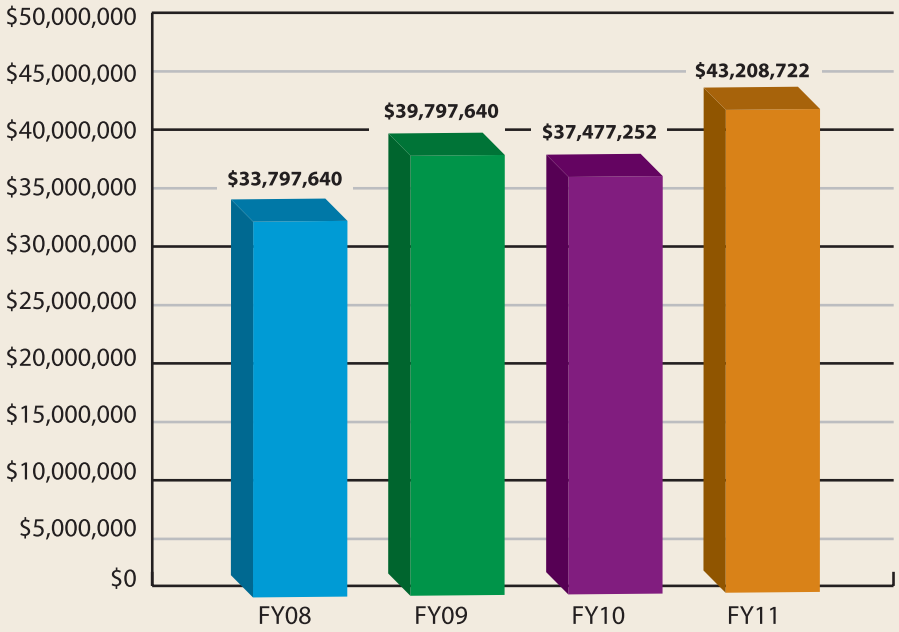

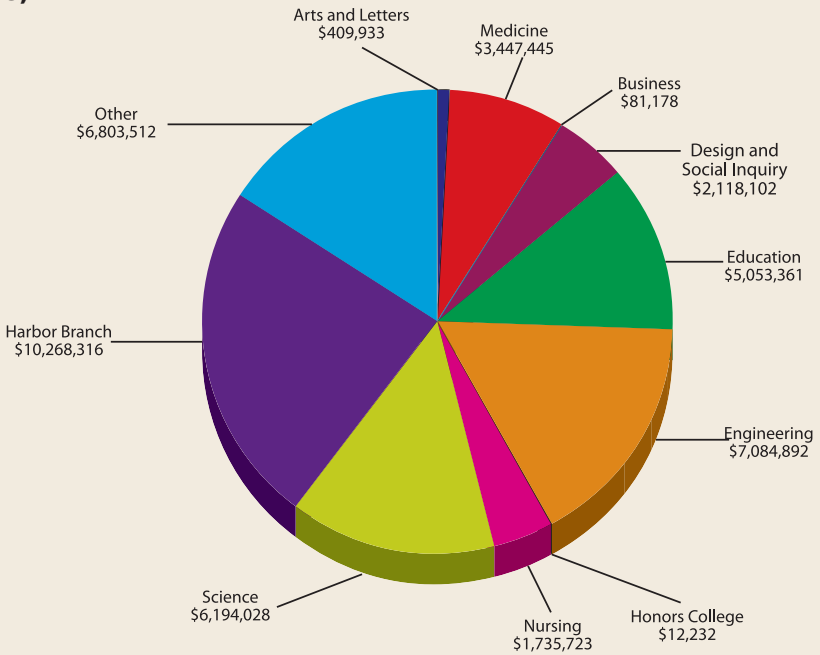

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