



UCF Office of Research
& Commercialization

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A QUARTERLY PUBLICATION HIGHLIGHTING RESEARCH ACTIVITIES AT UCF

Research

& Commercialization



DR. HENRY DANIELL

Turning Plants into Possible Cures with Help From an Orange County-Funded Greenhouse.

STORY PAGE 6

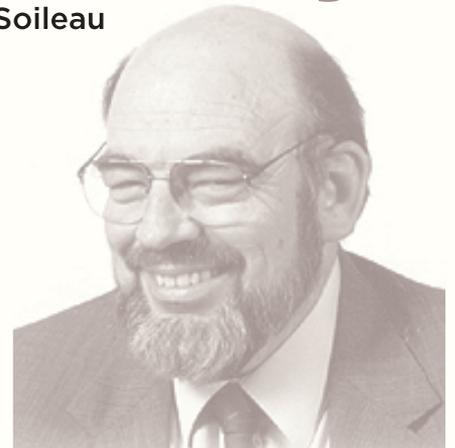
Green Giant



Research & Commercialization

Cookin' with M.J.

Vice President For Research M.J. Soileau



BRIGHT STUDENTS, FACULTY ARE KEY INGREDIENTS FOR ECONOMIC GROWTH

Universities “do” economic development. We educate the workforce and develop the knowledge base needed for progress. It has long been so in our country’s history. The Morell Act of 1862 supported the development of state universities as part of the nation’s reconstruction efforts following the Civil War and propelled our country to world leadership in agricultural and industrial production. And that trajectory continues today as U.S. technology plays a key role in the era of globalization.

At UCF we build on that great American tradition by weaving ourselves into the economic fabric of our region, state and nation. We share the goals of Enterprise Florida, the Florida High Tech Corridor Council, the Central Florida Technology Partnership, MyRegion.org, the Central Florida Research Park, the Metro Orlando Economic Development Commission, and other regional and state government economic development organizations. We apply the same energy and creativity to economic development, technology transfer, new business creation and attraction, and core industry support as we do to our missions of education and scholarship.

Our role in the development of Florida’s knowledge-based, wealth-producing economy starts with our creative faculty and students. Their leading-edge research produces the kind of disruptive or breakthrough technology that results in new products for existing companies and the creation of new companies. This simple fact is at the heart of Governor Jeb Bush’s World Class Scholars and Centers of Excellence programs, part of his 2006–2007 budget proposal. These programs emphasize that bright students and bright faculty are the key to a knowledge-based economy as are

focused resources in disciplines that enable and support key economic sectors, for example, optics and photonics, simulation and training, energy, information technology and biomedical science. Another part of Governor Bush’s plan is to promote Florida-based, early stage venture capital. UCF was the first university in the state to step up and invest some of our very limited royalty income into Inflexion, a venture capital firm formed to invest in early stage Florida ventures.

Partnership with Florida industry ensures that talent and creative work will attract, retain, and grow internationally competitive companies in Florida. UCF has embraced this concept since its creation. We had the top-rated proposal in the first Center of Excellence competition – The Florida Photonics Center of Excellence – in large part due to the fact that this strategy was already a key part of the UCF culture.

UCF is a great big university (seventh largest in the nation). Our recipe for becoming the nation’s great metropolitan research university follows: Take leading-edge research and combine it with aggressive partnership with industry. Add a good measure of collaboration with government and economic development organizations, and liberal quantities of creativity to ensure that our research is translated into the economic development of our region. The result? A true delicacy – a community that is diverse, healthy and vibrant.

Cheers! *MJS*
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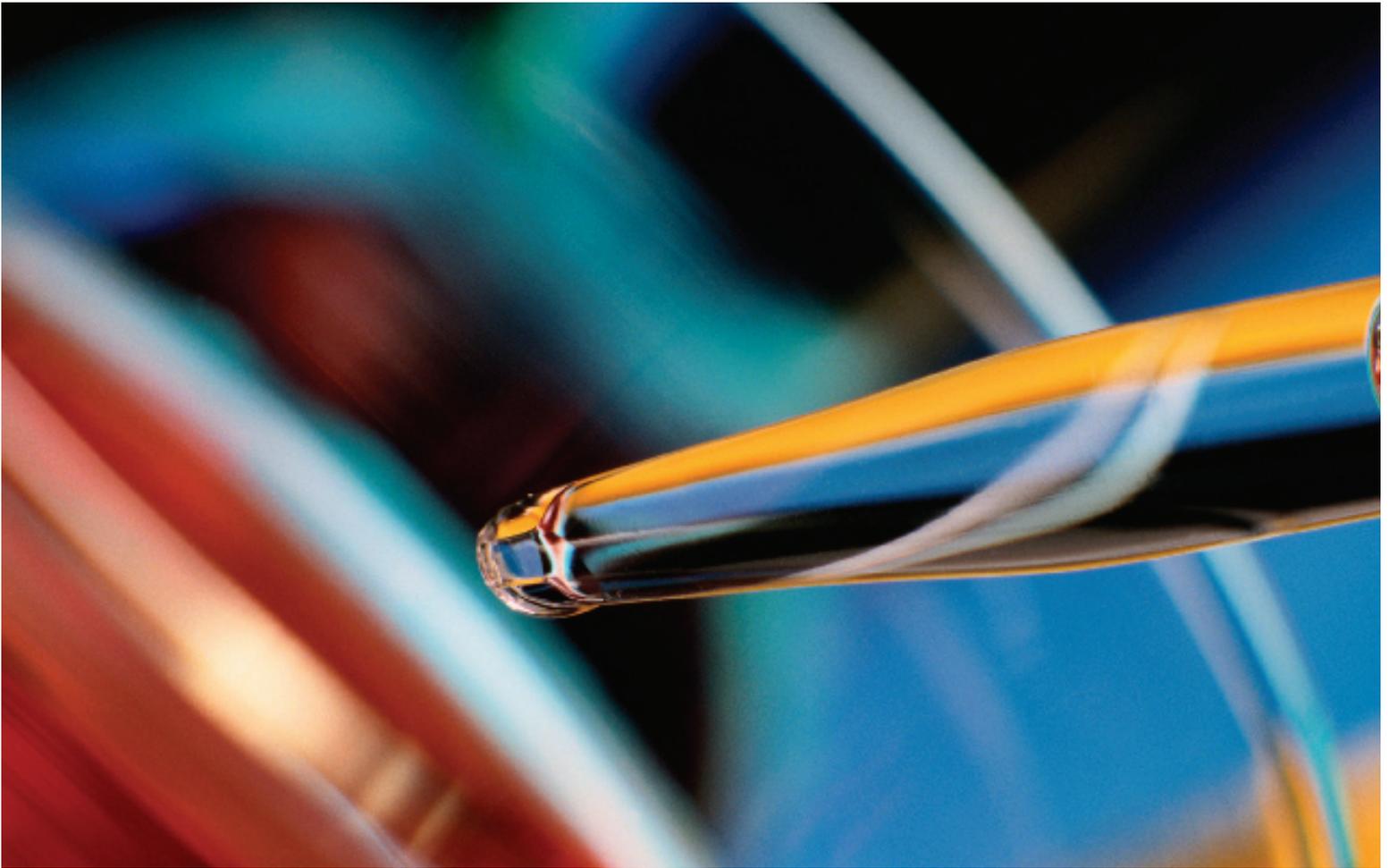
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..... A QUARTERLY PUBLICATION HIGHLIGHTING RESEARCH ACTIVITIES AT UCF

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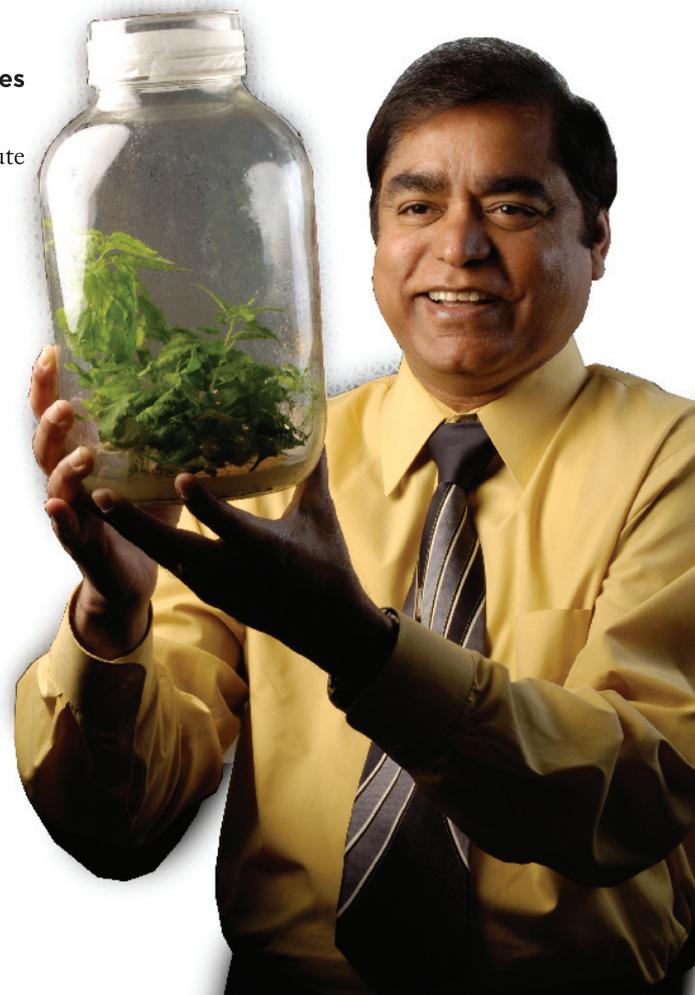
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UCF Offers Firm Foundation for Economic Growth

Strategy, Research, Partnerships Deliver Knowledge in Key Areas

THE SUMMER after he became UCF's fourth president in 1992, John C. Hitt, who is an avid reader, happened to read a book on the battle between Europe, Asia and the U.S. for domination of the global economic market.

That book sparked his thinking about the role of a university in the world's economy. He realized that if a university capitalized on the void in certain technological areas, it could make an enormous societal contribution. And attract a goldmine for the community.

With that in mind, Hitt made a point of studying what UCF did well and building upon it.

"I could see that there were examples, such as CREOL (the Center for Research and Education in Optics and Lasers) and IST (the Institute for Simulation and Training), of private industries, government agencies, and the university working together. I saw that as something our people did well," Hitt said.

He took those strengths and parlayed them into long-term goals for the institution.

Those five goals, including an emphasis on achieving international prominence in key programs of graduate study and research, set a clear direction for the university. Hitt's firm belief in the value of strategic partnerships provided a method for getting there.

What UCF focuses on is delivering knowledge in focused strategic areas that complement the needs of the region. And, according to those who lead Central Florida's economic development efforts, it's working.

The Florida High Tech Corridor Council, formed to focus exclusively on the strengths of three partner universities and regional high-tech companies, offers matching funds for research projects that pair university faculty and students with scientists and engineers at high-tech companies. It has found a formula that is now being emulated across the state and nation. Since 1996 the Council has provided \$43 million in funding

for 615 research projects in partnership with more than 250 companies. The total funding grows to \$130 million when combined with company matches.

Since Hitt's arrival, UCF's strengths have grown in depth and breadth. External funding for research conducted at the university has risen from \$28.4 million in 1992 to \$103.6 million in 2005. The number of Ph.D. graduates from the university has increased from 29 in 1992 to 155 in 2005. And in addition to strengths in optics and photonics, modeling and simulation, and engineering, UCF has added expertise in life sciences and biomolecular sciences, nanoscience, computer science, energy efficiency, and others.

UCF's College of Engineering and Computer Science alone has grown to 5,725 students and is listed in the *U.S. News & World Report's* 2006 America's Best Graduate Engineering Colleges.

Strategic strengths are enormous bargaining chips with those on the front lines of negotiation with companies deciding whether or not to relocate to Orlando.

"There are very few high-wage, high-value projects that will not involve UCF," says Ray Gilley, president and CEO of the Metro Orlando Economic Development Commission.

When JetBlue Airways was looking for a site for its first training facility, company executives were pretty well set on going to Fort Myers until they learned about UCF's world-class curriculum in simulation, modeling and training.

"We were confident we could supply them with those specialty skills," which ultimately influenced them to locate in Orlando, Gilley said.

In another case Electronic Arts wanted to consolidate several of its studios around the

world and was considering whether to turn its Metro Orlando production facility into a hub or absorb it into another one of its facilities.

By working with UCF's School of Film and Digital Media, the Florida Interactive Entertainment Academy was created to generate a skilled workforce for the company, as well as to give students at the academy an opportunity for valuable industry experience.

"UCF developed a customized curriculum to produce these game developers," Gilley said. That's something some of the other region's the company was looking at weren't able to do.

According to Orange County Mayor Richard T. Crotty: "UCF is Central Florida's premier partner for increasing the region's capacity and capability for invention, innovation and entrepreneurship. This is our springboard for staying competitive and has played a key role in the county's economic stimulus package."

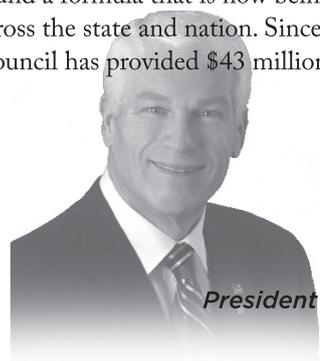
Among the UCF programs Orange County supports are the Disney/SBA National Entrepreneur Center, the Institute for Economic Competitiveness, the UCF Technology Incubator, the Small Business Development Center, the Small Business Advisory Board Council, the UCF Orange County Venture Lab and the UCF Biotech Greenhouse.

UCF's President Hitt stressed that supplying needed skills is one of the most effective ways a university can contribute to economic growth.

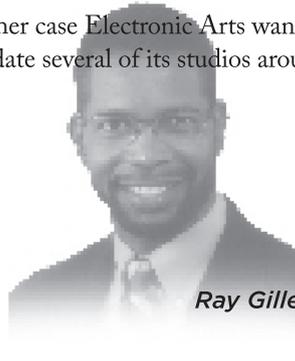
"One thing we bring to the table is a lot of degrees—more than 9,000 degrees a year—many are in the sciences, technology and business. Those degrees are likely to generate jobs and wealth."

And a highly educated and entrepreneurial workforce is the core of what economic development leaders say strengthens communities and the nation.

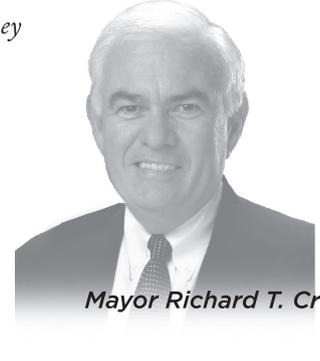
- Barb Abney



President John C. Hitt



Ray Gilley



Mayor Richard T. Crotty

Economic Development Services

The University of Central Florida promotes the economic growth of the region through education, research and partnership. Below are several services and entities established by UCF and UCF partners that directly contribute to the development of technology, companies and jobs in Central Florida.

UCF Office of Research & Commercialization

Purpose:

UCF's research enterprise plays an important role in Florida's emergence as a technological and economic leader in the 21st century. Research awards have risen steadily over the years to 2005's record \$103.6 million, ushering UCF into the ranks of major research institutions. UCF's dedicated faculty, students and staff continue to expand the quality, depth and breadth of research programs conducted at the university.

The knowledge economy encourages the rapid progression of discoveries from the laboratory to the marketplace, and UCF is a national leader in this area. The success of the UCF Technology Incubator, the establishment of the Disney/SBA National Entrepreneurship Center, the UCF Orange County Venture Lab and the UCF Technological Entrepreneurship Center all illustrate UCF's commitment to innovation-based economic development in the region.

Results:

- External research awards totaling \$103.6 million in 2005

Contact:

www.research.ucf.edu
407-823-3778



UCF Office of Technology Transfer

Purpose:

The University of Central Florida strives to be the leading partnership university in the United States. As part of this effort, UCF collaborates with industry and new startups

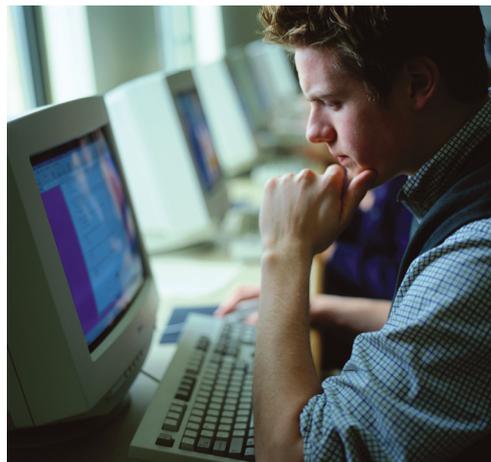
to commercialize the intellectual property developed by UCF inventors. Through its collaborative efforts UCF delivers valuable technology to partners who create products and services in the markets they serve.

Results:

- 25 patents granted to UCF and six university-developed technologies licensed to business partners in 2005
- Processed 76 patent applications and 130 new invention disclosures in 2005, nearly doubling the amount of new inventions filed at UCF in one year

Contact:

www.tt.research.ucf.edu
407-823-3778



UCF Colleges, Centers and Institutes

Purpose:

Through its 10 colleges and more than 20 leading centers and institutes in areas including photonics, materials, modeling and simulation, biomedical sciences, nanotechnology, energy and others, UCF provides the education and innovative research required to support a knowledge-based, wealth-producing economy. With a dozen regional campuses located throughout Central Florida, UCF offers the entire region a foundation for economic growth.

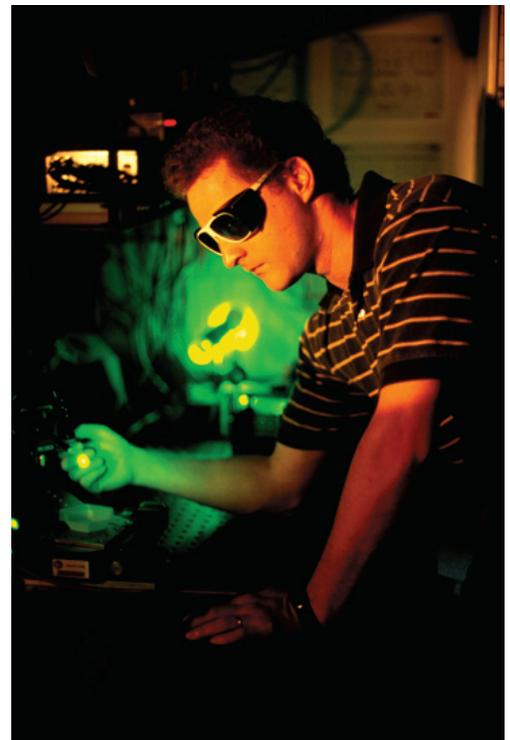
Results:

- Top-40 ranked university for quality in technology programs (Source: *MIT Technology Review*)

- Of Florida universities without medical schools, largest recipient of extramural grant and contract support
- Twenty-ninth largest graduate school in the country
- Second-highest number of National Merit Scholars in Florida
- Seventh-largest university in the nation

Contact:

www.research.ucf.edu
407-823-3778



UCF Technological Entrepreneurship Center (TEC)

Purpose:

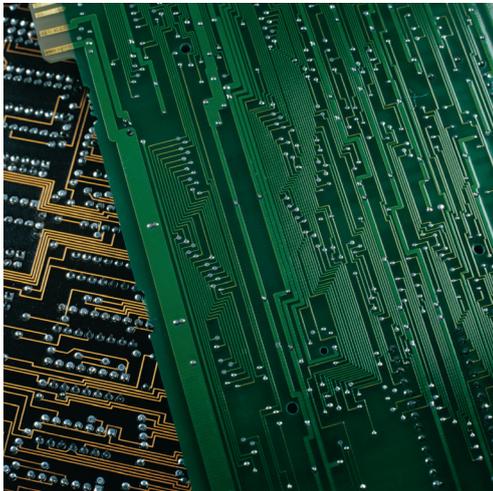
The UCF Technological Entrepreneurship Center (TEC), a program of UCF's College of Business Administration, offers innovative educational opportunities and conducts basic research that improves understanding of technology venture emergence and success. The UCF-TEC actively cultivates mutually beneficial partnerships with university, business and government leaders that enhance the university's academic programs and research, and commercialization productivity.

Results:

- The winners of the TEC's first two business plan competitions joined the UCF Technology Incubator and competed in the Fortune Small Business national business plan competition
- UCF Entrepreneurship course enrollment increased approximately 70 percent last year
- 15 interns worked on business opportunities in the first year of operation

Contact:

www.tec.ucf.edu
407-823-3683



UCF Orange County Venture Lab

Purpose:

The UCF Orange County Venture Lab, a partnership between UCF's College of Business Administration, Office of Research & Commercialization, and Orange County Government, provides free business advice and a variety of educational workshops to help faculty, students and community entrepreneurs commercialize their research and business ideas.

The lab's experienced business coaches and mentors help create and nurture technology companies with real-world service and access to programs such as the Small Business Innovative Research (SBIR) program and business workshops.

Results:

- Hired five student interns and assessed the market viability of 10 technologies developed at the Florida Solar Energy Center (FSEC)
- Sponsored an SBIR workshop for students and faculty that led to two new companies founded on UCF research
- Assisted 100 student visitors and coached 20 students and local technology start-up companies hiring UCF students, paying

higher than average wages and seeking capital investment

Contact:

www.venturelab.ucf.edu
407-823-1442

Small Business Development Center

Purpose:

The UCF Small Business Development Center is supported by the College of Business Administration and the Small Business Administration. The center, which is located in the Disney/SBA National Entrepreneur Center in downtown Orlando, provides business seminars and free one-on-one counseling for small business owners. Serving Brevard, Flagler, Lake, Orange, Osceola, Seminole, Sumter and Volusia counties, the UCF SBDC maintains four regional offices in addition to the main office in Orlando and is a part of the Florida Small Business Development Center Network.

Results:

- In 2005, provided counseling and training to over 6,000 individuals. This activity contributed to 78 new business starts and 497 new jobs
- An SBDC certified business analyst helped a plumbing company develop a strategic marketing plan with primary focus on awareness and new sales. This resulted in sales growth of \$420,000, five jobs created, and one job retained
- A clothing boutique was devastated by the 2004 hurricanes. The SBDC helped the client apply for a disaster loan and communicate the need for the loan to the Small Business Administration. The company received a \$33,700 loan to purchase additional inventory and repair the facility

Contact:

Small Business Development Center
www.sbdcorlando.com
407-420-4859



Small Business Advisory Board Council

Purpose:

The Council, part of the Small Business Development Center, acts as a matchmaker between Central Florida businesses and volunteers. By forming advisory boards, the council helps businesses reach outside experts that can aid in the growth and development of the company. The Council's goal is to positively impact Central Florida businesses by helping to increase revenue and profit, create new jobs, increase wages, reduce costs and delivery times, and improve customer service.

Results:

- The UCF SBDC's Advisory Board Council was named an International Economic Development Council (IEDC) Program Winner (for areas with a populations of greater than 200,000) in 2004
- More than 250 community professionals have been recruited to serve on 50 advisory boards for qualified Central Florida businesses per year with annualized value of the total volunteer time expected to be in excess of \$500,000

Small Business Advisory Board Council
www.advisoryboardcouncil.org
407-420-4850



UCF Technology Incubator

Purpose:

The Incubator, a partnership of UCF, Orange County, the City of Orlando and the Florida High Tech Corridor Council, provides early-stage technology companies with the enabling tools, training and infrastructure to create financially stable high-growth enterprises. Since opening in 1999, the Incubator has served more than 80 emerging technology companies, which have generated nearly 700 jobs with an average salary of \$60,000 and more than \$100 million in revenues. The Incubator's rigorous programs include mentoring and advising in all aspects of business development and growth.

Results:

- Optium, a UCF spinout company commercializing optical telecommunications technologies, is now a \$100 million-plus company getting ready to go public
- Rini Technologies, started by a UCF Ph.D. graduate, is now a multimillion dollar company
- Cognoscenti Health Institute, National Business Incubator Association (NBIA), incubator client of the year in 2004, has grown into a multimillion dollar, 70-plus employee company
- UCFTI was named NBIA Incubator of the Year 2004

Contact:

www.incubator.ucf.edu
407-882-0202



Disney/SBA National Entrepreneur Center

Purpose:

The Disney/SBA National Center contributes to economic development by providing a one-stop shop for entrepreneurs. The NEC has 11 on-site partners who provide services to the small business community, including one-on-one counseling, business plan assistance, financial assistance, training seminars and networking. The founding partners of the NEC are the U.S. Small Business Administration (SBA), University of Central Florida, Orange County Government and Disney Worldwide Services.

The mission of the NEC is to be a leading catalyst for entrepreneurial growth and success.

Results:

- Since its inception in June 2003, the center has counseled and trained over 26,000 clients, facilitated over 214 business start-ups, and created and retained approximately 2,400 jobs

- Intelliorg, Inc., located in the UCF Technology Incubator, has been certified by the SBA enabling the company to compete for federal government contracts. The company was selected as one of the firms to be featured in the SBA's Fiscal Year 2005 Performance and Accountability Report
- The owner of Screenworks USA, Sharad Mehta, was selected as the 2004 U. S. Small Business Administration (SBA) Small Business Person of the Year for the state of Florida and continues to serve as a member of the SBDC Advisory Board Council. In December 2005, Mehta received an SBA loan to purchase a new warehouse which was inaugurated last December

Contact:

www.floridanec.org — NEC Web Site
407-420-4850

UCF Office for Economic Development

Purpose:

The Office assists in the creation, attraction and retention of high technology-based companies to the Florida High Tech Corridor and the state of Florida. The Office serves as an access point to UCF for economic development projects in the Central Florida region.

Results:

- Provides easy access to university resources
- Assisted the community effort that led to the creation of the Florida Interactive Entertainment Academy (FIEA)
- Together with the community assisted in bringing JetBlue and the expansion of Electronic Arts to Orlando

Contact:

universityrelations.ucf.edu/econ_dev.html
407-882-2103

Thomas D. Garofalo Institute for Economic Competitiveness

Purpose:

The Institute for Economic Competitiveness, established by UCF's College of Business Administration, was created to foster a healthy relationship around academia, business, and government. The institute serves commerce and government as a single point of contact with economic information resources. The IEC aims to expand public understanding by convening business leaders, scholars, policy makers, civic groups and media to discuss critical issues.

Results:

- A significant contributor to *The New Cornerstone Report* which influenced development of Florida's economic development strategy
- Created a comprehensive analysis of the state of the manufacturing industry in Florida. This information was used in crafting manufacturing legislation
- Orange County established an endowed chair to attract an eminent scholar to the institute

Contact:

www.iec.ucf.edu
407-823-1453

Central Florida Research Park

Purpose:

The 1000-acre plus Central Florida Research Park, which is affiliated with UCF, is ranked among the top 10 research parks in the nation. The research park is home to over 100 companies, 10,000 employees, many of them students and UCF graduates, and elements of the U.S. Joint Forces, as well as university departments and projects.

Contact:

www.cfrp.org
407-282-3944

Florida Photonics Center of Excellence Lab Expansion and Incubator

Purpose:

The Center will add 21,000 square feet of office and laboratory space to the Center for Research and Education in Optics and Lasers (CREOL) building at UCF. This added space will house the new faculty who are being hired as part of the matching commitment to the Florida Photonics Center of Excellence proposal as well as provide space for companies to work closely with faculty. Construction is under way, with completion in November 2006.

Contact:

www.creol.ucf.edu
407-823-6858

Compiled by Aixa Acevedo, Stacey Hunt, Christa Santos

UCF Research Briefs

Research is at the heart of a knowledge-based economy. The University of Central Florida had a record year in sponsored research funding in 2005 and continues on that track in 2006. The following briefs summarize some of the ways research from UCF benefits the state, the nation, and Central Florida.

Bush Applauds Awards to UCF

Governor Jeb Bush congratulated Florida's university-based research community on their outstanding performance in the 2006 Department of Defense (DoD) Multidisciplinary University Research Initiative (MURI) grant program. UCF received three of 30 grants awarded to 20 universities. The MURI grants awarded total more than \$150 million, with Florida's grant contracts expected to be valued at approximately \$15 million.

"Advancing Florida's ability to sustain a strong science-based research and development community is paramount to diversifying Florida's economy," said Governor Bush. "This is a tremendous honor for Florida's research community, and in particular, for the scientists and researchers at UCF. These projects will continue to build Florida's reputation as an 'Innovation Hub of the Americas'."

The only other university that received three lead-institution MURI awards was Caltech, followed by MIT, the University of Michigan, Penn State and Arizona State, who received two awards each. Two of the UCF awards came out of the Florida Photonics Center of Excellence; the third is from UCF's Institute for Simulation and Training.

The focus of the MURI program is to identify and encourage large-scale, multidisciplinary topics of research that represent exceptional opportunities for future DoD applications and technology development. The average award is approximately \$3 million over a three-year period, with possible additional funding available (up to a total of five years). The Department of Defense MURI grants provide long-term support for research, graduate students and laboratory instrumentation development in support of specific science and engineering research that is vital to the national defense.

UCF's MURI Awards went to

- Eduardo Salas of IST (Institute of Simulation and Training) and psychology will lead a team of UCF researchers—Florian Jentsch, Steve Fiore, Shawn Burke

and Valerie Sims—and MURI partners Arizona State University, University of Illinois and University of Pittsburgh, in research in shared cognition and team collaboration in network-centric operations. Military, homeland security and disaster teams may handle emergencies better as a result of improved training based on this research.

- Eric Van Stryland as principal investigator, with David Hagan and Pieter Kik as co-principal investigators, will study Ultrafast Switching for Optical Imaging. Other institutions participating with Center for Research and Education in Optics and Lasers (CREOL) as the lead are Georgia Institute of Technology, Purdue University and University of Arizona.
- Martin Richardson as principal investigator will study Ultrafast Laser Interaction Processes For LIBS and Other Sensing Technologies. Other institutions participating with CREOL as the lead are University of Nebraska, Lincoln, University of California at Berkeley, Johns Hopkins University and Florida A&M University.
- Van Stryland is also a participant on a new MURI award to Kent State University, to study Negative Index Materials (NIMs), and Richardson is co-principal investigator with John Ballato, Clemson University, on a MURI to study High Power Fiber Lasers.

Florida Solar Energy Center Selected to Lead Three National Research Programs

The Florida Solar Energy Center (FSEC) has been selected to receive more than \$15 million from the U.S. Department of Energy (DOE) over a five-year period to conduct research in three major energy areas: fuel cells, industrialized housing, and building energy simulation.

FSEC, a UCF research institute, will lead nationwide teams of researchers from universities, DOE's national laboratories and industry in the three projects.

The FSEC team will oversee the \$19 million DOE High Temperature, Low Relative Humidity Membrane fuel cell work involving the activities of working group that includes researchers from Arizona State University, Case Western Reserve University, Clemson University, the Colorado School of Mines, FuelCell Energy, General Electric, Giner Electrochemical Systems, Pennsylvania State University, the University of Tennessee and Virginia Tech.

The working group will prepare and evaluate new membranes for proton exchange membrane (PEM) fuel cells, a technology that has been receiving worldwide attention due to its uses in the hydrogen economy and the automobiles of the near future.

The potential applications for PEM fuel cells range from automotive propulsion to power for hand-held devices such as cell phones.

In the second project, the Building America Industrialized Housing Partnership (BAIHP) will continue its work to accelerate the nationwide development of cost-effective, production-ready energy technologies that can be widely implemented by factory and site homebuilders. These technologies will achieve 30 percent to 50 percent savings in whole-house energy use through a combination of energy efficiency and renewable energy measures. The team will conduct research in the Southeast (hot-humid climate zone) and the Pacific Northwest (marine and cold climate zones) on improved duct systems, factory integrated heating, cooling and water heating systems, green products and processes, cool roofs and other energy-saving products, and strategies.

The third project, Advancement of DOE's EnergyPlus™ Building Energy Simulation Program, is an important multiyear effort to expand upon DOE's investment in building science analysis tools. EnergyPlus is a building energy simulation program that focuses on improving the energy efficiency and long-term economic feasibility of buildings. It has been recognized worldwide for its excellence in technical ability to accurately model buildings.

UCF, NIH Study: Anthrax Vaccine Can Be Grown in Plants

Enough anthrax vaccine to inoculate everyone in the United States could be grown inexpensively and safely with only one acre of tobacco plants, a University of Central Florida molecular biologist has found.

Mice immunized with a vaccine produced in UCF professor Henry Daniell's laboratory through the genetic engineering of tobacco plants survived lethal doses of anthrax administered later by National Institutes of Health researchers. The results of the NIH-funded study are featured in the December issue of the *Infection & Immunity* journal.

Daniell's research is a breakthrough in efforts to find a safe and effective method of producing large quantities of vaccine for anthrax, one of the top bioterrorism threats facing the United States. The new production method also could help the government and health-care providers avoid supply shortages, as one acre of plants can produce 360 million doses in a year.

"Anthrax vaccine is very much in need, primarily because of bioterrorism concerns," Daniell said. "But in the United States, only one company has the capacity to produce the vaccine, and it is made in very small quantities by fermentation. We can provide enough doses of a safe and effective vaccine for all Americans from just one acre of tobacco plants."

Daniell conducted his study with part of a \$1 million NIH grant and a \$2 million U.S. Department of Agriculture grant that cover research related to genetic engineering in plants as a way to produce therapies for several diseases. Daniell's work holds promise for treating other diseases, including diabetes and hepatitis, and improving vaccines for plague, cholera and other bioterrorism agents.

- Chad Binette

Harris Corp. Donates \$3 Million to Help UCF Prepare High-Tech Workforce

Harris Corporation, an international communications technology company headquartered in Central Florida, last fall announced a \$3 million donation that will advance the University of Central Florida's engineering and computer science research and better prepare students for high-tech, high-wage jobs.

The gift, along with an additional \$3 million in state-matching funds, will equip research laboratories in a new, four-story engineering building that is under construction on UCF's

Orlando campus. The Harris Corporation Engineering Center is scheduled to open this year.

- Chad Binette

NASA Hydrogen Research Grant Pushes Funding Past \$30 Million

NASA has approved a \$7.4 million grant to fund another year of a hydrogen research project in which Florida universities are developing new ways to use the valuable fuel source, pushing the total funding for the four-year project to more than \$30.3 million.

Researchers at the seven state universities have conducted more than 70 research projects on hydrogen production, safety, storage, cryogenics, fuel cells and other related areas that have positioned Florida as a major player in future NASA missions to space and in helping achieve energy independence for the nation.

"NASA's decision to continue funding for this project is exciting news for all of us who drive vehicles here on earth as well as the people flying into space," said M.J. Soileau, vice president for Research.

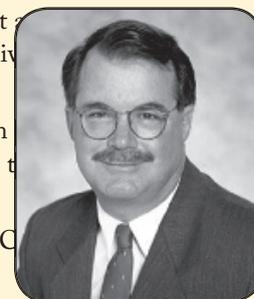
- UCF Staff

Basic or Applied, University Research Welcome Here

Scientific research is at the core of economic development in Florida that work is being done at record levels at the University of Florida.

In 2005, researchers at UCF were awarded \$103.6 million exceeding the \$100 million milestone for the first time in the history.

"The record-setting work being done by faculty here at UCF to the economic health of our region," said M.J. Soileau, vice president for Research at UCF.



Dr. Tom O'Neal

That research covers the gamut, from basic research answering fundamental scientific questions, such as "how do materials interact at the nano-scale?" to applied research that targets more specific problems. Industry oftentimes asks scientists to use their research expertise to solve problems that keep them competitive, such as building a stronger building or a faster computer.

Funded research contributes to the local economy largely through new technologies, new companies and, ultimately, new products.

The Office of Research & Commercialization at UCF focuses on both applied and basic research from its beginning stages to its end result.

"We like to say we bring research full circle—from idea to innovation to realization," said Tom O'Neal, associate vice president for Research and chief executive officer of the UCF Technology Incubator.

More than 400 UCF faculty and staff were awarded research grants in 2005 for more than 800 new and continuing projects.

The results of many of these projects are just what companies need to help them grow and prosper.

"With applied research, you're one step closer to commercialization," said Ray Gilley, president of the Metro Orlando Economic Development Commission. "With companies that are looking to grow, the access to that research in Orlando is invaluable," Gilley said.

Q & A

with ED SCHONS

UCF's Office of University Economic Development was created in 2000 to support the creation of a business environment in which high-wage, high-skill jobs can flourish. As director of university economic development, Ed Schons works with high-tech companies to assess their continuing educational needs and with the university to develop programs to meet those needs.

Q: Universities have taken increasingly active roles in economic development in the last decade. Why?

Some universities, like ours, have realized that the strength and diversity of an economy is a critical element of how a region, a state and a university will grow.

Of most importance are the students we graduate and the faculty who teach them. I think of a university as a generator or engine that will drive the future economy. When you bring very smart people together with resources like we have here at UCF new discoveries are made that are developed into technologically relevant and commercially viable products, processes and services. When you add the human capital advantage our faculty and students bring to the equation, a highly educated and skilled workforce, you are a real contributor in a globally competitive innovation-based economy.

Q: In what technology areas has UCF most strongly influenced workforce education and job creation?

We find our graduates in a multitude of industries. Our basic sciences, such as physics, engineering, computer science, microbiology and biomolecular sciences, biology, chemistry and mathematics, seem to be industry drivers. Our College of Business Administration makes a difference in the fields of finance, accounting, marketing, economics and management information systems, for example.

These programs meet the needs of a variety of industries, including business services, entertainment and hospitality, space and defense, health care, transportation, energy, optics and photonics.

Q: What technology areas offer the biggest potential for growth in the region today?

UCF research is moving to prominence in fields such as:

- Optics and lasers, photonics
- Education
- Nanoscience
- Biomolecular Science
- Simulation and Training
- Wastewater management
- Human Factors
- Material Science
- Film and Digital Media
- Interactive Entertainment
- Aviation and Aerospace
- Renewable Energy
- Microelectronics
- Information Technology
- Transportation

We are constantly enhancing the colleges that provide the curricula that produce a workforce to meet the needs of business and industry. This, coupled with cutting-edge research, offers huge growth opportunities for Florida and this region.

Q: The Florida High Tech Corridor Council is a unique tool for Central Florida. How has this group contributed to the growth of the region?

The Florida High Tech Corridor Council was created as result of UCF and the University of South Florida's efforts about 10 years ago to keep a major high-tech high-wage company from being recruited to Spain. In my observation, it was the first time two universities came together sharing their resources to solve a complex economic development retention project. The Council today has grown to include the University of Florida. The mission remains to attract, retain and grow high-tech industry and the workforce to support it within the 23-county Florida High Tech Corridor.

The FHTCC's Matching Grants Research Program brings research faculty and students from the three universities together with private companies to conduct company-specific research to advance technology that solves real-world problems.

The FHTCC has brought economic development organizations throughout the Corridor to work on common issues that can help create more high-wage, high-skilled jobs for people who choose to live and work in the 23 counties served by the Corridor. Last year alone, these economic development organizations and universities provided more than 33,000 hours in support of a variety of marketing, workforce and industry projects matching a FHTCC investment of more than \$4.9 million with more than \$6 million in cash and in-kind support.

