

21st CENTURY TECHNOLOGY, RESEARCH, AND SCHOLARSHIP ENHANCEMENT ACT

2006 Annual Report

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I. Introduction

The 2006 Florida Legislature passed House Bill 1237 which created the 21st Century Technology, Research, and Scholarship Enhancement Act (see Appendix A). The Act created three primary programs: the 21st Century Centers of Excellence Program, the 21st Century World Class Scholars Program, and the State University System Research and Economic Development Investment Program. The legislation identified the following stated purposes of these programs:

- Investing in programs that attract world class scholars and building centers of excellence as an important means of increasing technology-based business in this state;
- Requiring co-investment as a means of leveraging state dollars;
- Aligning research and development efforts with established, statewide economic-development strategies, including an emphasis on identified economic clusters;
- Facilitating value-added job creation through continuous improvement in university research, as well as entrepreneurship and capital-development programs; and
- Establishing Florida as a leading state for entrepreneurship and innovation, with continued commitment to university centers of excellence and an expanding base of research and development.

II. The Florida Technology, Research, and Scholarship Board

To direct the implementation of the legislation, the Florida Technology, Research, and Scholarship Board was established. The board consists of 11 members: five members appointed by the Governor, three members by the President of the Senate, and three members by the Speaker of the House of Representatives (see Appendix B). Appointed for four years, members were chosen as being representative of business leaders, industrial researchers, academic researchers, scientists, and leaders in the emerging and advanced technology sector. The legislation directed the Board of Governors to provide staff support and expenses associated with the activities of the board, although no funding was allocated by the Legislature to meet these expenses.

The Board was charged with recommending criteria to the Board of Governors for the 21st Century World Class Scholars Program and with providing guidance to the Board of Governors regarding the selection, implementation, and administration of the Centers of Excellence Program. Notwithstanding its added responsibilities, this eleven member board is in effect a reconstitution of the Florida Emerging Technologies Commission which was legislatively created by similar legislation in 2002. The sole responsibility of the former board was to

recommend the creation of centers of excellence to the State Board of Education which, at that time, was responsible at the state level for virtually all of higher education in Florida.

III. 2002 Emerging Technology Commission

The 2002 Legislature appropriated \$30 million to establish centers of excellence in the State and the Emerging Technology Commission recommended funding at \$10 million each for three of 16 proposals that it reviewed:

- 1. The Center of Excellence in Biomedical and Marine Biotechnology at Florida Atlantic University, which focuses on the discovery and development of compounds and medicines capable of treating various diseases including cancer, cardiovascular disease, and arthritis.
- 2. The Florida Photonics Center of Excellence at the University of Central Florida, which builds upon efforts to make Florida a world leader in optics, lasers, and photonics research and education, with a focus on nanophotonics and biophotonics.
- 3. The Center of Excellence in Regenerative Health Biotechnology at the University of Florida, which focuses on developing probiotics and gene therapies for treating cancer and genetic diseases.

IV. 21st Century World Class Scholars Program

The 21st Century World Class Scholars program, which provided matching funds to state universities, was created in order to attract nationally-recognized faculty in the areas of science, technology, engineering, and mathematics ("STEM"). For the 2006-07 fiscal year, \$20 million was allocated for this program. The 21st Century legislation provided guidelines for the Board of Governors to consider in developing its criteria for an award to recruit researchers and/or investigators who have high academic credentials and demonstrated competence and experience that meet the requirements established by the Board.

The BOG Research and Economic Development Committee identified five criteria areas (see Appendix C) and assigned points with a weighted scale for the evaluation of university proposals based on the criteria. A priority of the Committee was the determination that the university demonstrate a strong recruitment strategy for the hiring of world-class faculty, with a plan that included intentions of who was being recruited and in what field, amounts of state and non-state matching funds, timelines, and whether or not cash was in hand, pledged or simply being contemplated.

The application and award process for the 21st Century Scholar program required that the Committee review and select from the pool of potential

candidates submitted prior to the program's submission deadline of September 15, 2006. Six universities submitted a total of 26 proposals (see Appendix D) requesting support for scholars, as follows:

Table I

University	Number of Proposals	Total Funding Request
University of Florida	7 proposals	\$16,639,559
University of South Florida	7 proposals	\$13,214,060
Florida State University	5 proposals	\$13,125,010
University of Central Florid	a 4 proposals	\$ 5,200,000
Florida International Unive	rsity 2 proposals	\$ 2,000,000
Florida Atlantic University	1 proposal	\$ 1,000,000

The BOG Research and Economic Development Committee identified university submissions that clearly demonstrated institutional eligibility and that targeted the types of candidates who best met the intent of the legislation for optimal impact of the program. See Table II below.

2006 21st Century Scholars *

University	World Class Scholar	Academic Field	Award Level	Status
UF	Dr. Linda Bartoshuk	Behavioral Neuroscience	\$3 M	Hired
UF	Dr. Martin Glicksman	Materials Science and Engineering	\$1 M	Hired
UF	Dr. Grant McFadden	Molecular Genetics / Microbiology	\$1 M	Hired
UF	Dr. Scott Perry	Materials Science and Engineering	\$1 M	Hired
UF	Dr. Johannes Vieweg	Genetic and Cellular Immunology	\$1 M	Hired
UF	Dr. Kirk Conrad	Functional Genomics	\$1 M	Hired
FSU	Dr. David Larbalestier	Mechanical Engineering / Applied Superconductivity	\$3M	Hired
FSU	Dr. Eric Hellstrom	Mechanical Engineering / Applied Superconductivity	\$1M	Hired
FSU	Dr. David Gilbert	Biological Sciences / Molecular Biology	\$1 M	Hired
USF	Dr. Jeffrey Robert Gruen	Developmental Pediatrics / Learning Disabilities	\$1M	Letter of Intent Signed
USF	Dr. Thomas Unnasch	Infectious Disease and Biodefense	\$1M	Contract Signed
USF	Dr. David Hui	Molecular Medicine	\$1M	Letter of Intent Signed
USF	Dr. Richard Gitlin	Pattern Recognition	\$1M	Letter of Intent Signed
UCF	Dr. Marwan Simaan	Electrical Engineering / Signal Processing	\$1M	Letter of Intent Signed
UCF	Dr. D.W.van der Weide	Optics and Photonics	\$1M	Letter of Intent Signed
FIU	Dr. Joleigh Simpson	Bionanotechnology	\$1M	Contract Signed

^{*} as of February 27, 2007

V. 21st Century Centers of Excellence Program

The 21st Century Centers of Excellence program was created by the 2006 Legislature to provide Florida with a clear position of leadership in key emerging technology areas with the unique potential for economic and societal impact in the future, through the development of centers of excellence. For the 2006-07 fiscal year, \$30 million was allocated for this program.

The Florida Technology, Research and Scholarship Board recommended to the Board of Governors the qualifications, standards, and requirements for approval of investments in centers of excellence. The Board was encouraged to consult with Enterprise Florida, Inc., the Florida Research Consortium, Bio-Florida, IT

Florida, the Florida Aviation Aerospace Alliance, and any other entity whose input might be helpful in determining the requirements and standards for the program. The Board approved a series of criteria (See Appendix E) for the evaluation of university proposals, including general and specific success factors and a weighted scale of the following evaluation criteria:

- Vision
- Research Focus
- Economic Impact
- Collaboration
- Leadership and Management
- Leveraging Resources
- Workforce

The Board received 32 proposals from individual universities, collaborative groups of universities and stand-alone institutes (see Appendix F) and reviewed the proposals based on the established criteria. From this review, the Board identified 19 proposals (see Table III below) as finalists and requested each institution to make an oral presentation of their proposal.

Table III

2006 Center of Excellence Finalists

Offering Institution(s)	Center Name
FAU	Center of Excellence in Ocean Energy Technology
UCF	Florida Photonics Center of Excellence (FPCE) Laser Technology Initiative (LTI)
UCF	Florida Imaging Science Center (FISC)
UCF, UF	Center of Excellence for Research and Technology for Space (CERTS)
UCF, FSEC	Center of Excellence for Florida's Energy Future: Developing Photovoltaics, Hydrogen and Fuel Cell Technologies
FIU	Florida Center of Excellence in Hurricane Damage Mitigation
FIU, UCF, FGCU	Florida Center of Excellence for Biomedical Nanotechnology
Moffitt	Center for Nanotechnology Sensors and Systems for the Early Detection of Cancer
UF	Florida Institute for Sustainable Energy (FISE) Energy Technology Incubator
UF	Center of Excellence for Pathogen Protections (COEPP)
IHMC	Center of Excellence in Human Performance Enhancement and Restoration
UF	Center for Nano-Bio Sensors
FSU	Florida Applied Superconductivity Center of Excellence (FASCOE)
FSU	Center of Excellence in Advanced Materials (CEAM)
FSU	Power and Energy Center of Excellence
FSU	Florida's Bio-Nanotechnology Nexus (NanoNext)
USF	Florida Center for Excellence in Pattern Recognition
USF	Florida Center for Excellence for Biomolecular Identification & Targeted Therapeutics
Moffitt	Center of Excellence in Drug Discovery & Development (CED³)

The Florida Technology, Research and Scholarship Board met November 12-13, 2006 to consider oral presentations from the 19 university proposals and make recommendations to the Board of Governors. A subsequent conference call was held to correct a tabulation error of board votes that had resulted in an inaccurate ranking of the proposals. Following a review of the corrected proposal rankings, the Board forwarded its rank order recommendations to the Research and Economic Development Committee of the Board of Governors.

At its November 16, 2006 meeting, the Board of Governors recommended the establishment of six centers of excellence in the State and the distribution of the \$30 million appropriation as follows.

1. Florida Center for Excellence in Biomolecular Identification & Targeted Therapeutics (FCoE-BITT) – University of South Florida - \$ 8,000,000

The objective of FCoE-BITT is to stimulate economic growth of the biotechnology industry in the Tampa Bay region and the State of Florida, by integrating innovative bio-molecular identification technologies for response to and treatment of biological threats and translating these technologies to commercial products to benefit the environment and the public health.

2. Center of Excellence in Ocean Energy Technology (COEOET) - Florida Atlantic University - Florida Atlantic University - \$ 5,000,000

The COEOET will be a synergistic partnership among academia, industry, and state and federal agencies that will foster the research, design, development, implementation, testing, and commercialization of cutting-edge ocean energy technology that is cost-competitive with existing fossil-fuel-based power generation.

3. Florida Institute for Sustainable Energy (FISE) Energy Technology Incubator - University of Florida - \$ 4,500,000

The University of Florida will create an Energy Technology Incubator, as part of the FISE, to accelerate commercialization of biofuel, fuel cell, and other energy technologies to meet Florida's urgent and growing energy needs and bring high tech energy companies and jobs to the State of Florida.

4. Florida Photonics Center of Excellence (FPCE) Laser Technology Initiative – University of Central Florida - \$ 4,500,000

The objective of the Laser Technology Initiative within the Florida Photonics Center of Excellence (FPCE) is the development of intellectual capital in laser technology with applications in medicine, advanced manufacturing and defense and the transition of this intellectual capital to the private sector.

5. Center for Nano-Bio Sensors University of Florida - \$ 4,000,000

The Center for Nano-Bio Sensors, in partnership with Sandia National Laboratories, Santa Fe Community College, and key industrial partners will harness select, world-class resources in nanotechnology and biotechnology

sciences to produce life saving, high value healthcare sensors and probes to enable Florida to expand, attract and retain robust nano-bio based industries.

6. Center of Excellence in Advanced Materials - Florida State University - \$4,000,000

The Center of Excellence in Advanced Materials will develop technologies to make materials stronger, lighter, multifunctional, and affordable. CEAM will also provide training statewide to prepare a strong workforce base to attract advanced material industries to Florida.

VI. State University System Research and Economic Development Investment Program

This program was established in order to enhance graduate education and enable state universities to become nationally competitive in science and technology-based economic development. A total of \$45 million in matching funds to eligible institutions was provided to construct and acquire cutting-edge, state-of-the-art, science and engineering research facilities and specialized equipment to support research programs, foster economic development, and accelerate Florida's innovation economy. University eligibility was determined by certain criteria specified in the Bill, which provided \$36.5 million for Level I institutions, and \$8.5 million for Level II institutions. The legislation required universities to raise matching funds from non-university sources in order to participate in this program.

Based upon eligibility determination, Level I funding was divided between two SUS institutions, and one SUS institution received Level II funding. At its September 21, 2006 meeting, the Board of Governors approved the distribution of \$23.25 million of the level I funding to the University of Florida and \$13.25 million to Florida State University, and \$8.5 million of level II funding was approved for the University of South Florida.

VII. Accountability Measures

2002 Centers of Excellence

The Emerging Technology Commission provided a plan in 2002 for the oversight and review of the success of three centers of excellence established by the Commission that focused on factors related to economic success. The Plan included general oversight review standards as well as specific review standards for each program.

During 2006, the Board of Governors requested and received an update of progress in the establishment of the three centers: the Center of Excellence in Biomedical and Marine Biotechnology at Florida Atlantic University, the Florida Photonics Center of Excellence at the University of Central Florida, and the Center of Excellence in Regenerative Health Biotechnology at the University of Florida. A compilation of the data received appears in the tables below:

Florida Atlantic University Center of Excellence in Biomedical and Marine Biotechnology

Measures of Progress To Date as of Jan-06*	FAU COE*
COE Expenditures and Commitments	\$10,000,000
Effectiveness of the research	
Number of Publications	55
Research Grants and Awards	\$25,074,386
State of research collaborations	27
State of personnel additions	13
Integration with K – 20 education system (# students or teachers served)	2470
Number of industry internships granted to graduate and post-doctoral	
students	3
Number of Patents filed	21
Number of Patents issued	23
Number of technologies licensed	3
Start up Businesses	3
Out of state business relations	31
Contact with Venture Capitalists.	14

^{*} Derived from Quarterly reports from the beginning of the reporting process, adding quarterly figures where appropriate to arrive at a "To Date" figure

University of Central Florida Photonics Center of Excellence

Measures of Progress To Date as of Jan-06*	UCF FPCE
COE Expenditures and Commitments	\$8,619,617
Number of Publications	138
Research Grants and Awards #	\$24,922,726
State of research collaborations	29
State of personnel additions	31
Integration with K – 20 education system (# students or teachers served)	15
Number of industry internships granted to grad. and post-doctoral students	15
Number of Patents filed	40
Number of Patents issued	14
Number of technologies licensed	3
Start up Businesses	6
Out of state business relations	34
Contact with Venture Capitalists.	10

 $^{^{\}star}$ Derived from Quarterly Reports from the beginning of the reporting process, adding quarterly figures where appropriate to arrive at a "To Date" figure

University of Florida Center of Excellence in Regenerative Health Biotechnology

Measures of Progress To Date as of Jan-05*	UF CERHB
COE Expenditures and Commitments	\$16,060,491
Effectiveness of the research	
Number of Publications	125
Research Grants and Awards	\$3,250,000
State of research collaborations	2
State of personnel additions	44
Integration with K – 20 education system (# students or teachers served)	100
Number of industry internships granted to grad. and post-doc students	0
Number of Patents filed	0
Number of Patents issued	0
Number of technologies licensed	0
Start up Businesses	0
Out of state business relations	5
Contact with Venture Capitalists.	3

^{*} Derived from Quarterly reports from the beginning of the reporting process, adding quarterly figures where appropriate to arrive at a "To Date" figure

A summary of the responses of the three institutions appears below:

	UCF	FAU	UF
Progress as of	Jan-06	Jan-06	Jan-06
Startups	4	3	0
# of Employees	45	2	0
Venture Funding	\$10,500,000	\$0	\$0
Average Salary	\$62,930	NA	NA
Affiliated Companies	2	0	1
State Funds Awarded	\$10,000,000	\$10,000,000	\$10,000,000
Other State Funds Awarded	\$5,062,900	\$827,138	\$0
Federal Funds Awarded	\$15,970,187	\$18,789,389	\$3,250,000
Private Funds Awarded	\$8,952,539	\$3,157,859	\$10,000
Foundation Funds	\$0	\$2,300,000	\$10,000,000
License Income	\$181,250	\$5,500	\$0

2006 21st Century World Class Scholars and Centers of Excellence

The 2006 legislation makes the following charge with respect to the annual report of 21st Century World Class Scholars and Centers of Excellence:

"The board, in cooperation with the Board of Governors of the State University System and the state universities or research centers receiving investments under this act, shall issue an annual report by December 31 each year of the activities conducted, including the accomplishments and overall economic benefits to the state, the number of 21st Century World Class Scholars attracted, the number of Centers of Excellence created or expanded, the success of collaborations with related industries, and the success of these programs. The annual report shall be presented to the Governor, the President of the Senate, and the Speaker of the House of Representatives. The annual report must include a copy of an independent audit of the board and a review of the progress of programs administered by the board. "

During 2007, the six Centers that were established in 2006 will be working to implement specific accountability measures in preparation for reporting out to the Board of Governors and the Legislature.

APPENDIX A

21st Century Technology, Research, and Scholarship Enhancement Act

FLORIDA HOUSE OF REPRESENTATIVES

HB 1237, Engrossed 2 2006

40

1	A bill to be entitled
2	An act relating to special postsecondary education
3	programs; creating s. 1004.226, F.S.; creating the 21st
4	Century Technology, Research, and Scholarship Enhancement
5	Act; providing legislative findings and intent; providing
6	definitions; creating the Florida Technology, Research,
7	and Scholarship Board within the Board of Governors of the
8	State University System; providing for members of the
9	board; providing for terms; providing for board members to
10	be reimbursed for per diem and expenses incurred in the
11	performance of their duties; requiring that the Board of
12	Governors of the State University System provide staff
13	support and other support for the board; requiring that
14	the board provide recommendations for the 21st Century
15	World Class Scholars Program and the Centers of Excellence
16	Program; authorizing the board to form committees and
17	consult with certain other entities; providing for the
18	21st Century World Class Scholars Program to provide
19	matching funds to state universities to pay salaries and
20	support research in science and technology; providing
21	guidelines for the board to consider in developing its
22	criteria for an award of matching funds; requiring a
23	minimum investment of private funds; specifying the
24	purposes of the Centers of Excellence; identifying the
25	entities that are eligible to submit proposals for a
26	center of excellence; requiring that the board develop
27	criteria for approving proposals to create or expand a
28	Center of Excellence; requiring that the board solicit
29	proposals and notify state universities and research
30	centers of a call for proposals; requiring that a Center
31	of Excellence approved under the act report on its
32	achievement of objectives; requiring certain documentation
33	if funds are approved for a Center of Excellence in excess
34	of a specified amount; requiring that the board submit an
35	annual report to the Governor and Legislature; creating s.
36	1004.635, F.S.; creating the State University System
37	Research and Economic Development Investment Program to
38	provide matching funds to institutions to construct and
39	acquire facilities and equipment to support research
40	programs and foster economic development; providing for

- administration by the Board of Governors of the State
- 42 University System; specifying eligibility criteria for
- state university participation; providing for the matching
- of appropriated funds; providing appropriations; providing
- for future repeal of s. 1004.226, F.S.; creating s.
- 46 1004.384, F.S.; authorizing a college of medicine at the
- 47 University of Central Florida; creating s. 1004.385, F.S.;
- 48 authorizing a college of medicine at Florida International
- 49 University; providing an effective date.

50 51

Be It Enacted by the Legislature of the State of Florida:

52

- 53 Section 1. Section 1004.226, Florida Statutes, is created
- to read: 1004.226 The 21st Century Technology, Research, and
- 56 Scholarship Enhancement Act.--
- 57 (1) LEGISLATIVE FINDINGS AND INTENT.--
- 58 (a) The Legislature finds that diversifying this state's
- 59 economy requires a focus on building a growing base of high-wage
- jobs and on nurturing those technologies and clusters that will
- be the foundation of Florida's growing economic diversity and
- 62 prosperity.
- (b) The Legislature further finds that special programs
- are needed to facilitate the recruitment of exceptional talent
- to Florida's research universities and centers and to provide
- the infrastructure and resources that precipitate joint efforts
- and coinvestment among state research and development
- 68 institutions, private industry, and government. Florida needs
- 69 consistent commitment and investment in order to further the
- state's strategy of capitalizing on innovative research and
- 71 development to build a thriving, technology-rich economy.
- 72 (2) CREATION.--The 21st Century Technology, Research, and
- 73 Scholarship Enhancement Act is created for the purpose of:
- 74 (a) Investing in programs that attract world class
- scholars and building Centers of Excellence as an important
- means of increasing technology-based business in this state;
- 77 (b) Requiring coinvestment as a means of leveraging state 78 dollars;
- 79 (c) Aligning research and development efforts with
- 80 established, statewide economic-development strategies,
- including an emphasis on identified economic clusters;
- (d) Facilitating value-added job creation throughcontinuous improvement in university research, as well as
- entrepreneurship and capital-development programs; and
- 85 (e) Establishing Florida as a leading state for
- 86 entrepreneurship and innovation, with continued commitment to

- university Centers of Excellence and an expanding base of
- 88 research and development.
- 89 (3) DEFINITIONS.--As used in this section, the term:
- 90 (a) "A 21st Century World Class Scholar" means a principal
- 91 researcher/investigator who has high academic credentials,
- 92 demonstrated competence, and experience that meets the
- 93 requirements established by the board for a 21st Century World
- 94 Class Scholar.
- 95 (b) "Applicant" means any state university, private
- 96 university located in this state, or any private or public
- 97 research center, community college, or training center in this
- state which coordinates with a state university for purposes of
- 99 this act.
- 100 (c) "Board" means the Florida Technology, Research, and
- 101 Scholarship Board.
- (d) "Center of Excellence" means an organization of
- personnel, facilities, and equipment established to accomplish
- the purposes and objectives of this act.
- (e) "Community college" means a public community college
- in this state as defined in s. 1000.21.
- 107 (f) "Private university" means a baccalaureate degree
- granting independent nonprofit university that is accredited by
- the Commission on Colleges of the Southern Association of
- 110 Colleges and Schools and that is located in and chartered as a
- domestic corporation by the state.
- 112 (g) "Research center" means an institute, center, or
- clinic that includes research and development or education as a
- principal mission of the organization.
- 115 (h) "State university" means a public university in this
- state as defined in s. 1000.21.
- 117 (4) FLORIDA TECHNOLOGY, RESEARCH, AND SCHOLARSHIP BOARD.--
- 118 The Florida Technology, Research, and Scholarship Board is
- created within the Board of Governors of the State University
- 120 System to guide the establishment of Centers of Excellence and
- the attraction of world class scholars.
- 122 (a) The board shall consist of 11 members. Five members
- shall be appointed by the Governor, one of whom the Governor
- shall appoint as chair of the board, one of whom must be a
- member of the board of directors of Enterprise Florida, Inc.,
- and one of whom must be a member of the Board of Governors of
- the State University System. Three members shall be appointed by
- the President of the Senate and three members shall be appointed
- by the Speaker of the House of Representatives. Appointed

- members must be representative of business leaders, industrial
- 131 researchers, academic researchers, scientists, and leaders in
- the emerging and advanced technology sector. Appointed members
- may not serve for more than 4 years and any vacancy that occurs
- during these appointees' terms shall be filled in the same
- manner as the original appointment. A majority of members
- 136 constitutes a quorum.
- 137 (b) Members of the board shall serve without compensation,
- but are entitled to receive reimbursement for per diem and
- travel expenses in accordance with s. 112.061 while in the
- performance of their duties.
- 141 (c) The Board of Governors shall provide staff support for
- the activities of the board and per diem and travel expenses for
- board members.
- 144 (d) The board is charged with recommending criteria to the
- Board of Governors for the 21st Century World Class Scholars
- 146 Program and with providing guidance to the Board of Governors
- regarding the implementation and administration of the Centers
- of Excellence Program. The board shall recommend to the Board of
- 149 Governors the qualifications, standards, and requirements for
- approval of investments in Centers of Excellence under this act.
- 151 The board may form committees of its members and is encouraged
- to consult with Enterprise Florida, Inc., the Florida Research
- 153 Consortium, Bio-Florida, IT Florida, the Florida Aviation
- 154 Aerospace Alliance, and any other entity whose input may be
- 155 helpful in determining the requirements and standards for the
- 156 program.
- 157 (5) THE 21ST CENTURY WORLD CLASS SCHOLARS PROGRAM.--
- 158 (a) This act allocates state matching funds to attract
- 159 21st Century World Class Scholars to state universities.
- 160 (b) The 21st Century World Class Scholars Program shall be
- used as a tool to develop the state's capabilities in science
- and high-technology research, emphasizing Florida's identified
- strengths in science and technology while also recognizing new
- technologies as they may emerge.
- 165 (c) The board, in consultation with senior administrators
- of state universities, state university foundation directors,
- the Office of Tourism, Trade, and Economic Development, the
- 168 board of directors of Enterprise Florida, Inc., and leading
- members of private industry, shall develop and recommend to the
- 170 Board of Governors criteria for the 21st Century World Class
- 171 Scholars Program. Such criteria shall address, at a minimum, the
- 172 following:
- 173 1. The presence of distinguished faculty members,

- including whether the university has a substantial history of
- external funding, along with the strong potential for attracting
- a scholar of national or international eminence.
- 177 2. The presence of academically outstanding students,
- along with the promise and potential for attracting additional
- 179 highly qualified students.
- 180 3. The presence of adequate research and scholarly support
- 181 services.
- 182 4. The existence of an academic environment having
- 183 appropriate infrastructure, including buildings, classrooms,
- libraries, laboratories, and specialized equipment, that is
- conducive to the conduct of the highest quality of scholarship
- 186 and research.
- 187 5. The demonstration of concordance with Florida's
- strategic plan for economic development or an emphasis on one or
- more emerging sciences or technologies that could favorably
- impact the state's economic future.
- 191 (d) A state university must raise a minimum of \$1 million
- to be eligible for state matching funds to recruit a 21st
- 193 Century World Class Scholar. Funds raised by the university
- shall be eligible for a one-to-one match from the state.
- 195 Revenues received from state appropriations, student tuition and
- 196 fees, and state-funded contracts or grants are not eligible for
- 197 state match.
- 198 (e) Upon the verification by the Board of Governors that a
- 199 state university has met the criteria for a 21st Century World
- 200 Class Scholar, the Board of Governors shall release matching
- 201 funds to the university. Funds shall be used for the purpose of
- 202 recruiting a 21st Century World Class Scholar and shall be
- 203 expended according to an expenditure plan approved by the Board
- of Governors.
- 205 (f) This act is not intended to replace or obviate
- 206 existing programs.
- 207 (6) CENTERS OF EXCELLENCE.--
- 208 (a) The purposes and objectives of a Center of Excellence
- 209 include:
- 210 1. Identifying and pursuing opportunities for university
- scholars, research center scientists and engineers, and private
- 212 businesses to form collaborative partnerships to foster and
- 213 promote the research required to develop commercially promising,
- advanced, and innovative science and technology and to transfer
- 215 those discoveries to commercial sectors.
- 2. Acquiring and leveraging public-sector and private 217 sector funding to provide the totality of funds, personnel,

- 218 facilities, equipment, and other resources needed to support the
- 219 research required to develop commercially promising, advanced,
- and innovative science and technology and to transfer those
- 221 discoveries to commercial sectors.
- 222 3. Recruiting and retaining world class scholars, high223 performing students, and leading scientists and engineers in
- 224 technology disciplines to engage in research in this state and
- 225 to develop commercially promising, advanced, and innovative
- science and technology.
- 4. Enhancing and expanding science and technology
- 228 curricula and laboratory resources at universities and research
- 229 centers in this state.
- 230 5. Increasing the number of high-performing students in
- 231 science and technology disciplines who graduate from
- 232 universities in this state and pursue careers in this state.
- 233 6. Stimulating and supporting the inception, growth, and
- 234 diversification of science and technology-based businesses and
- ventures in Florida and increasing employment opportunities for
- 236 the workforce needed to support such businesses.
- 237 (b) The following entities are eligible to submit
- 238 proposals for a center of excellence:
- 239 1. Any state university.
- 240 2. Any private university.
- 241 3. The H. Lee Moffitt Cancer Center and Research
- 242 Institute.
- 243 4. The Florida Institute for Human and Machine Cognition,
- 244 Inc.
- 5. Any community college, training center, or other public
- or private research center in the state which coordinates with a
- 247 state university for purposes of this act.
- 248 (c) The board shall recommend to the Board of Governors
- 249 criteria for approving proposals to create or expand a Center of
- 250 Excellence. Such criteria shall consider:
- 251 1. The maturity of the applicant's existing programs
- 252 relating to a proposed Center of Excellence.
- 253 2. The comprehensiveness and effectiveness of site plans
- relating to a proposed Center of Excellence.
- 255 3. The existing amount of the applicant's resources
- 256 dedicated to activities relating to a proposed Center of
- 257 Excellence.
- 258 4. The regional economic structure and climate.
- 259 5. The degree to which the applicant identifies and seizes
- 260 opportunities to collaborate with other public or private
- 261 entities for research purposes.

- 262 6. The presence of a comprehensive performance and
- accountability measurement system.
- 7. The use of an integrated research and development
- strategy using multiple levels of the educational system.
- 266 8. The ability of the applicant to raise research funds
- and leverage public and private investment dollars to support
- advanced and emerging scientific and technological research and
- 269 development projects.
- 270 9. The degree to which the applicant transfers advanced
- and emerging sciences and technologies from its laboratories to
- the commercial sector.
- 273 10. The degree to which the applicant stimulates and
- 274 supports the creation of new ventures.
- 275 11. The existence of a plan to enhance academic curricula
- by improving communication between academia and industry.
- 277 12. The existence of a plan to increase the number,
- 278 quality, and retention rate of faculty and graduate students in
- advancing and emerging science and technology-based disciplines.
- 280 13. The existence of a plan to increase the likelihood of
- 281 faculty and graduate students pursuing private-sector careers in
- 282 the state.
- 283 14. The ability of the applicant to provide capital
- facilities necessary to support research and development.
- 285 (d) To call for proposals, the board shall notify the
- 286 president or chief executive officer of the eligible entities
- 287 identified in paragraph (b). The board shall periodically
- 288 solicit proposals for Centers of Excellence.
- 289 (e) The board shall recommend to the Board of Governors
- 290 for approval and funding those proposals that meet the criteria
- 291 approved by the Board of Governors.
- 292 (f) If no proposal is judged worthy of approval during a
- 293 solicitation cycle, an approval need not be made. This act does
- 294 not establish a limit for an investment amount; however, any
- 295 approval for a single Center of Excellence exceeding \$20 million
- 296 must be documented to have superior prospects for success in its
- 297 field of research and offer outstanding opportunities to
- 298 leverage state dollars.
- 299 (7) ANNUAL REPORT.--The board, in cooperation with the
- 300 Board of Governors of the State University System and the state
- 301 universities or research centers receiving investments under
- 302 this act, shall issue an annual report by December 31 each year
- 303 of the activities conducted, including the accomplishments and
- 304 overall economic benefits to the state, the number of 21st

- 305 Century World Class Scholars attracted, the number of Centers of
- 306 Excellence created or expanded, the success of collaborations
- 307 with related industries, and the success of these programs. The
- annual report shall be presented to the Governor, the President
- of the Senate, and the Speaker of the House of Representatives.
- 310 The annual report must include a copy of an independent audit of
- 311 the board and a review of the progress of programs administered
- 312 by the board.
- 313 Section 2. For the 2006-2007 fiscal year, the sum of \$8
- 314 million is appropriated from general revenue funds to the
- 315 University of South Florida for the purpose of enhancing
- 316 graduate programs.
- 317 Section 3. Section 1004.635, Florida Statutes, is created
- 318 to read:
- 319 1004.635 State University System Research and Economic
- 320 Development Investment Program.--
- 321 (1) LEGISLATIVE INTENT.--It is the intent of the
- 322 Legislature to create an investment program in state
- 323 universities that enhances graduate education and enables state
- 324 universities to become nationally competitive in science and
- 325 technology-based economic development.
- 326 (2) GENERAL PROVISIONS.--There is created the State
- 327 University System Research and Economic Development Investment
- 328 Program to provide matching funds to eligible institutions to
- 329 construct and acquire cutting-edge, state-of-the-art science and
- and specialized equipment to
- 331 support research programs, foster economic development, and
- accelerate Florida's innovation economy. The program shall be
- administered by the Board of Governors of the State University
- 334 System.
- 335 (3) INSTITUTIONAL ELIGIBILITY CRITERIA.--
- 336 (a) To be eligible to participate in the State University
- 337 System Research and Economic Development Investment Program at
- Funding Level 1, a state university must meet each of the
- 339 following criteria:
- 340 1. The number of nonprofessional doctoral degrees awarded
- each year must exceed 250. For purposes of this section,
- 342 nonprofessional doctoral degrees do not include degrees awarded
- in law, medicine, dentistry, and veterinary medicine. At least
- 344 25 percent of the nonprofessional doctoral degrees must be in a
- 345 mathematics, science, technology, engineering, or health-related
- 346 discipline as defined by Classification of Instructional Program
- 347 codes.
- 348 2. The number of postdoctoral appointees reported in the

- 349 most recent NSF/NIH Survey of Graduate Students and
- 350 Postdoctorates in Science and Engineering must exceed 200.
- 351 3. The 4-year undergraduate graduation rate must equal 40
- 352 percent or higher.
- 353 4. Expenditures from externally awarded contracts and
- grants must be a minimum of \$100 million per year.
- 355 5. The university must have a proven track record of
- securing patents and licenses leading to products in the
- 357 marketplace over the last 5 years.
- 358 6. At least 75 percent of the entering freshmen each
- 359 academic year who are classified as residents for tuition
- purposes pursuant to s. 1009.21 must be eligible to receive
- 361 Florida Bright Futures Scholarships.
- 362 7. The Basic Classification of the university, according
- 363 to the 2005 Carnegie Classifications, must be as a research
- university with very high research activity.
- 365 (b) To be eligible to participate in the State University
- 366 System Research and Economic Development Investment Program at
- Funding Level 2, a state university must meet, at a minimum, the
- requirements of subparagraphs (a)4. and 7.
- 370 The Board of Governors shall develop uniform guidelines,
- definitions, and reporting formats for a university to use to
- 372 demonstrate that it meets each of the criteria described in this
- 373 subsection. The Board of Governors shall determine the
- 374 eligibility status of a state university to participate in the
- 375 program provided that a state university may not participate in
- both Funding Level 1 and Funding Level 2 simultaneously.
- 377 (4) USE OF FUNDS.--Funds appropriated for the State
- 378 University System Research and Economic Development Investment
- Program shall be used by the Board of Governors to match funds
- 380 raised by an eligible university from nonuniversity sources on a
- 381 one-time dollar-for-dollar basis.
- 382 Section 4. For the 2006-2007 fiscal year, the sum of
- \$95,000,000 is appropriated from nonrecurring general revenue
- funds to the Board of Governors of the State University System
- of which \$20 million shall be allocated for the 21st Century
- World Class Scholars Program, \$30 million shall be allocated for
- 387 the Centers of Excellence Program, \$36.5 million shall be
- 388 allocated for Funding Level 1 of State University System
- 389 Research and Economic Development Investment Program, and \$8.5
- 390 million shall be allocated for Funding Level 2 of the State
- 391 University System Research and Economic Development Investment
- 392 Program.

369

- 393 Section 5. For the 2006-2007 fiscal year, the sum of \$5
- 394 million is appropriated from nonrecurring general revenue to the
- 395 State Board of Education for the Dr. Philip Benjamin Matching
- 396 Grant Program for Community Colleges to match donations for
- 397 scholarships for first-generation-in-college students.
- 398 Section 6. Section 1004.226, Florida Statutes, shall
- 399 expire on June 30, 2011.
- 400 Section 7. Section 1004.384, Florida Statutes, is created
- 401 to read:
- 402 1004.384 University of Central Florida College of
- 403 Medicine.--A college of medicine, as approved by the Board of
- 404 Governors on March 23, 2006, is authorized at the University of
- 405 Central Florida.
- 406 Section 8. Section 1004.385, Florida Statutes, is created
- 407 to read:
- 408 1004.385 Florida International University College of
- 409 Medicine.--A college of medicine, as approved by the Board of
- 410 Governors on March 23, 2006, is authorized at Florida
- 411 International University.
- 412 Section 9. This act shall take effect July 1, 2006.

APPENDIX B Florida Technology, Research, and Scholarship Board Members

FLORIDA TECHNOLOGY, RESEARCH, AND SCHOLARSHIP BOARD

Mr. David Griffin, Chair

President, David Griffin Consulting, Tallahassee

Mr. Joseph Lacher, Acting Chair

Chairman, Great Florida Bank, Miami

Mr. Charles Davidson

Chair, IT Florida, Orlando

Ms. Ann Duncan

Principal, Vertical Integration, Inc., Tampa

Dr. Lewis Duncan, III

President, Rollins College, Winter Park

Mr. George Gordon

CEO/Chairman, Enporion, Inc., Tampa

Mr. Chris Hart, IV

Senior Vice President, Enterprise Florida, Inc., Orlando

Mrs. Betti Lidsky

Founder, Hope for Vision's Heart Sight Miami

Mr. Stephen Mason

President and CEO, BayCare Health System, Clearwater

Mr. Brian McDonald

Consultant, BRM Group, Oldsmar

Dr. Donald C. Sullivan

ASAP Capital Partners, Tampa

APPENDIX C

The 21st Century World Class Scholars Program: Criteria for Evaluation of the 2006 Proposals

THE 21ST CENTURY WORLD CLASS SCHOLARS PROGRAM

Criteria for Evaluation of 2006 Proposals

The 21 Century Technology, Research, and Scholarship Enhancement Act includes the 21st Century World Class Scholars Program which provides matching funds to state universities in order to attract nationally-recognized faculty in the areas of the sciences, engineering, and technology and mathematics (STEM). The following criteria were used in the review of institution proposals.

- 1. Provide evidence that the institution's mission is concordant with the State University System Strategic Plan and the State's Strategic Plan for economic development, and that the institution places an emphasis on one or more emerging technologies or academic disciplines that could favorably impact the state's economic future as envisioned by the 21st Century Technology, Research, and Scholarship Enhancement Act.
- 2. Provide evidence that your institution currently has a distinguished faculty with national visibility and reputation and a substantial history of receiving external funding in the form of contracts and grants in academic disciplines directly associated with or applicable to the contemplated 21st Century World Class Scholar hire.
- 3. Provide evidence that your institution has outstanding students in the academic disciplines associated with the 21st Century World Class Scholar hire. This may include national rankings of academic disciplines, noteworthy alumni; student and graduate awards, honors, and other forms of recognition; and numbers of undergraduates accepted into nationally recognized graduate or professional programs.
- 4. Provide evidence of the presence of adequate research and scholarly support services as an institution as a whole and in academic disciplines associated with or applicable to the contemplated 21st Century World Class Scholar hire. This includes evidence of a long-standing Office of Research with an established record of securing, maintaining, and complying with federal grants in STEM disciplines; and institutional support of faculty in STEM disciplines appropriate to the creation of nationally recognized programs.
- 5. Provide evidence of the presence of an academic environment with appropriate infrastructure, buildings, classrooms, libraries, laboratories, and specialized equipment conducive to conducting the highest quality of scholarship and research faculty in academic disciplines directly associated with or applicable to the contemplated 21st Century World Class Scholar hire.

APPENDIX D

Master List of World Class Scholars Proposals

MASTER LIST OF WORLD CLASS SCHOLARS PROPOSALS

Proposal ID Number	University	Scholar Name (Field of Study)
1	FAU	Dr. Charles H. Hennekens (Biomedical Sciences)
2	UCF	Dr. Frede Blaabjerg (Electrical Engineering; Renewable Energy and Power Electronics)
3	UCF	Dr. Marwan Simaan (Electrical Engineering; Signal Processing and Control)
4	UCF	TBA (Optics and Photonics; Laser Medicine)
5	UCF	TBA (Fuel Cell)
6	FIU	Dr. Ashok Mulchandani (Bionanotechnology for Biomedical and Environmental Health Applications)
7	FIU	Dr. Peter Eklund (Nanotechnology: Carbon Nanotube and Nanowire Materials Processing and Sensor Development)
8	UF	Dr. Sivaramakrishnam "Bala" Balachandar (Mechanical and Aerospace Engineering)
9	UF	Dr. Linda Bartoshuk (Behavioral Neuroscience)
10	UF	Dr. Kirk Conrad (Functional Genomics)
11	UF	Dr. Martin Glicksman (Materials Science and Engineering)
12	UF	Dr. Grant McFadden (Molecular Genetics; Microbiology)
13	UF	Dr. Scott Perry (Materials Science and Engineering)
14	UF	Dr. Johannes Vieweg (Genetic and Cellular Immunology)
15	FSU	Dr. Eric Hellstrom (Mechanical Engineering; Applied Superconductivity)
16	FSU	Dr. David Larbalestier (Mechanical Engineering/ Applied Superconductivity)

17	FSU	Dr. Barbara Foorman (Florida Center for Reading Research; Learning Systems Institute; College of Education, Childhood Education, Reading, and Disability Services; Psychology, Neuroscience, and Learning Pathology)
18	FSU	Dr. David Gilbert (Biological Sciences; Molecular Biology and Genetics)
19	FSU	Dr. Alan Spector (Neuroscience)
20	USF	TBA (Biomolecular Science; Drug Discovery)
21	USF	Dr. Jeffrey Robert Gruen (Developmental Pediatrics; Learning Disabilities)
22	USF	Dr. Thomas Unnasch (Infectious Disease and Biodefense
23	USF	Dr. Jeffrey S. Weber (Interdisciplinary Oncology; Melanoma)
24	USF	TBA (Molecular Medicine)
25	USF	TBA (Oceanography and Climate Change)
26	USF	TBA (Pattern Recognition for Enhanced Security, Health, and Quality of Life

APPENDIX E

Centers of Excellence: Criteria for Evaluation of the 2006 Proposals

CENTERS OF EXCELLENCE

Criteria for Evaluation of 2006 Proposals

The 21st Century Technology, Research, and Scholarship Enhancement Act, provides for the establishment of university-based Centers of Excellence to give Florida a clear position of leadership in key emerging technology areas with the unique potential for significant economic and societal impact.

The following sets forth (A) the general success measures of a Center of Excellence and (B) specific factors identified as relevant to evaluating a proposed Center of Excellence.

A. General Success Factors: General success factors should include:

- 1. An integrated vision to develop commercially promising, advanced, and innovative technologies and a process to facilitate transfer of these technologies to the commercial sector as appropriate;
- 2. A national and prominent technology-centric research focus;
- 3. The potential for positive economic impact on Florida;
- 4. A leadership and management plan to assure success;
- 5. The ability to acquire and leverage public and private-sector funding to provide the totality of funds, personnel, facilities, equipment, and other resources needed to support the research required to develop commercially promising, advanced, and innovative technologies and to transfer those technologies to commercial sectors;
- 6. The promotion of collaborative partnerships among university scholars, research center scientists and engineers, and private businesses to foster the research required to develop commercially promising, advanced, and innovative technologies and to transfer those technologies to commercial sectors; and
- 7. The opportunities to develop a high-skilled, high-wage workforce.
- **B. Specific Success Factors:** The proposal must include and describe whether and how the following specific success factors identified as relevant to evaluating a proposed Center of Excellence are addressed. Following the proposal's Executive Summary, the proposal must contain a one-page crosswalk that identifies the specific page number(s) in which the 14 specific success factors are addressed.
- 1. Maturity of existing programs relating to a proposed center of excellence.
- 2. Existing amount of resources dedicated to activities relating to a proposed Center of Excellence.
- 3. Comprehensiveness and effectiveness of site plans relating to a proposed Center of Excellence.

- 4. Regional economic structure and climate.
- 5. The degree to which an applicant proposed to house a Center of Excellence identifies and seizes opportunities to collaborate with other public or private entities for research purposes.
- 6. The presence of a comprehensive performance and accountability measurement system.
- 7. The use of an integrated research and development strategy utilizing multiple levels of the educational system.
- 8. The ability of an applicant proposed to house a Center of Excellence to raise research funds and leverage public and private investment dollars to support advanced and emerging technological research and development projects.
- 9. The degree to which an applicant proposed to house a Center of Excellence transfers advanced and emerging technologies from its laboratories to the commercial sector.
- 10. The degree to which an applicant proposed to house a Center of Excellence stimulates and supports new venture creation.
- 11. The existence of a plan to enhance academic curricula by improving communication between academia and industry.
- 12. The existence of a plan to increase the number, quality, and retention rate of faculty, graduate students, and eminent scholars in advanced and emerging technology-based disciplines.
- 13. The existence of a plan to increase the likelihood of faculty, graduate students, and eminent scholars pursuing private-sector careers in the state.
- 14. Ability to provide capital facilities necessary to support research and development.

Weighting of Evaluation Criteria

Proposals for Centers of Excellence will be evaluated using the following criteria, which are in descending order of importance:

Cr	iteria	Weight
1.	Vision. The proposal must demonstrate a clear and integrated vision to develop commercially promising, advanced, and innovative technologies and to transfer those technologies to the commercial sector.	20%
2.	Research Focus. The proposal must demonstrate a national and prominent technology-centric research focus.	20%
3.	<i>Economic Impact</i> . The proposal must demonstrate the potential for positive economic impact on the State of Florida and the nation.	15%
4.	Collaboration. The proposal must promote opportunities for identifying and pursuing opportunities for university scholars, research center scientists and engineers, other educational institutions, as appropriate and private businesses to form collaborative partnerships to foster and promote the research required to develop commercially promising, advanced, and innovative technologies and to transfer those technologies to commercial sectors.	15%
5.	Leadership & Management. The proposal must outline a leadership and management plan to assure success if the center is funded.	10%
6.	Leveraging Resources. The proposal must demonstrate the ability to acquire and leverage public and private-sector funding to provide the totality of funds, personnel, facilities, equipment, and other resources needed to support the research required to develop commercially promising, advanced, and innovative technologies and to transfer those technologies to commercial sectors.	10%
7.	<i>Workforce.</i> The proposal must describe how the Center of Excellence would foster the development of a high-skilled, high-wage workforce.	10%

APPENDIX F

Master List of Centers of Excellence Proposals

MASTER LIST OF CENTERS OF EXCELLENCE PROPOSALS

Proposal ID Number	Offering Institution(s)	Center Name
1	FAU	Center of Excellence on Longevity
2	FAU	Center of Excellence in Ocean Energy Technology
3	UCF	Center for the Enhancement of Human Performance Through Modeling and Simulation
4	UCF	Florida Photonics Center of Excellence (FPCE) Laser Technology Initiative (LTI)
5	UCF	Florida Imaging Science Center (FISC)
6	FAU	Center of Excellence in Imaging Technology
7	UCF, UF	Center of Excellence for Research and Technology for Space (CERTS)
8	UCF, FSEC	Center of Excellence for Florida's Energy Future: Developing Photovoltaics, Hydrogen and Fuel Cell Technologies
9	UM	LifeTech Florida Center of Excellence in Advanced Technologies for Geriatric Health
10	FIU	Florida Center of Excellence in Hurricane Damage Mitigation
11	FIU, UCF, FGCU	Florida Center of Excellence for Biomedical Nanotechnology
12	UWF	Center of Excellence in Environmental Microbiology and Biotechnology
13	UM	Florida Center of Excellence in Visual Health Technologies
14	Moffitt	Center for Nanotechnology Sensors and Systems for the Early Detection of Cancer
15	UF	Florida Institute for Sustainable Energy (FISE) Energy Technology Incubator
16	UF	Center of Excellence for Pathogen Protections (COEPP)
17	IHMC	Center of Excellence in Human Performance Enhancement and Restoration

18	UF	Center of Excellence in Radiation Effects
19	UF	Center for Nano-Bio Sensors
20	UF	Center of Excellence in Smart Technology & Advanced Research for Personal Health and Independent Living (STARPHIL)
21	FAMU	Center for Computational Science and Technology (CCST)
22	FAMU	Center for Technologies from Microphysics
23	FSU	Florida Applied Superconductivity Center of Excellence (FASCOE)
24	FSU	Center of Excellence in Advanced Materials (CEAM)
25	FSU	Power and Energy Center of Excellence
26	FSU	Florida's Bio-Nanotechnology Nexus (NanoNext)
27	USF	Florida Center for Excellence in Pattern Recognition
28	USF	Florida Center for Excellence for Biomolecular Identification & Targeted Therapeutics
29	FAMU	Transportation Safety and Infrastructure Management Center
30	FAMU	Center of Excellence for Drug Discovery and Development in Areas of Health Disparity (COE/D³ HD)
31	UCF	Florida Center of Excellence in Chloroplast Genetic Engineering
32	Moffitt	Center of Excellence in Drug Discovery & Development (CED³)