**AGENDA**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:30 – 9:00 a.m.</td>
<td><strong>Continental Breakfast</strong></td>
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<tr>
<td>9:00 – 9:15 a.m.</td>
<td>Welcome</td>
<td>Marcos Marchena</td>
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<tr>
<td>9:15 – 9:25 a.m.</td>
<td>Advancing Preeminence at UCF</td>
<td>Dale Whittaker</td>
</tr>
<tr>
<td>9:25 – 10:15 a.m.</td>
<td>Programs of Strategic Emphasis</td>
<td>Paul Wiegand, Bahaa Saleh,</td>
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<tr>
<td></td>
<td>Modeling and Simulation</td>
<td>Pamela Carroll, Yoav Peles,</td>
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<td></td>
<td>Optics</td>
<td>Rudy McDaniel</td>
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<td>Student Counseling</td>
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<td>Aerospace Engineering</td>
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<td>Digital Media</td>
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<tr>
<td>10:15 – 10:30 a.m.</td>
<td><strong>Break</strong></td>
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<tr>
<td>10:30 – 11:00 a.m.</td>
<td>Programs of Strategic Emphasis (Continued)</td>
<td>Ben Noel, Reid Oetjen,</td>
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<td></td>
<td>Interactive Entertainment</td>
<td>Abraham Pizam</td>
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<td>Health Management Informatics</td>
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<td>Hospitality Management</td>
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<tr>
<td>11:00 – 11:05 a.m.</td>
<td>Funding</td>
<td>Dale Whittaker</td>
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<tr>
<td>11:05 – 11:20 a.m.</td>
<td>Successes</td>
<td>Dale Whittaker, Paul Wiegand</td>
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<td>Centers and Institutes</td>
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<tr>
<td>11:20 – 11:50 a.m.</td>
<td>Where Do We Go From Here?</td>
<td>Chester Kennedy, David Metcalf</td>
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<td>ICAMR</td>
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<td>Applied Research Institute</td>
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<td>Faculty Clusters</td>
<td>Chris Parkinson</td>
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<tr>
<td>11:50 – 12:00 noon</td>
<td><strong>Wrap-Up</strong></td>
<td>Dale Whittaker</td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Location</td>
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<tr>
<td>12:00 noon – 1:00 p.m.</td>
<td>Lunch</td>
<td>CFE Arena</td>
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<tr>
<td>1:00 – 2:15 p.m.</td>
<td>Research Benchmarking and Strategies</td>
<td>Dale Whittaker</td>
</tr>
<tr>
<td>2:15 – 2:30 p.m.</td>
<td>Break</td>
<td>Boardroom</td>
</tr>
<tr>
<td>2:30 – 3:15 p.m.</td>
<td>Central Florida Higher Education Competitors</td>
<td>Dale Whitaker</td>
</tr>
<tr>
<td>3:15 – 4:00 p.m.</td>
<td>Discussion</td>
<td>All</td>
</tr>
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</table>
Top Academic Programs and National Preeminence

May 13, 2016
National Academic Preeminence

• What it is
• What it means
• Reputation through impact

• This session considers the resources necessary to advance strong academic programs at UCF to national preeminence
National Preeminence Rankings

- Various rankings can serve as proxy for national preeminence, including:
  - *U.S. News and World Report* – Best Graduate Colleges
  - *The Princeton Review* – Top Gaming Programs
U.S. News Graduate Program Rankings

• “Specialty” rankings based solely on nominations from school deans from the list of schools surveyed
• Can select up to 10 top programs in each area
• Numerically ranked in descending order based on number of nominations received
• At least seven nominations must be received to be ranked
U.S. News Rank to Degree Volume Rank

<table>
<thead>
<tr>
<th>Program</th>
<th>U.S. News Rank</th>
<th>Degree Volume Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Eng</td>
<td>75</td>
<td>39</td>
</tr>
<tr>
<td>Comm Sciences &amp; Disorders</td>
<td>53</td>
<td>2</td>
</tr>
<tr>
<td>Computer Eng</td>
<td>64</td>
<td>18</td>
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<tr>
<td>Computer Science</td>
<td>90</td>
<td>29</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>Electrical Eng</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>Environmental Eng</td>
<td>75</td>
<td>23</td>
</tr>
<tr>
<td>Health Care Informatics</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>Industrial Eng</td>
<td>39</td>
<td>8</td>
</tr>
<tr>
<td>Materials Eng</td>
<td>65</td>
<td>36</td>
</tr>
<tr>
<td>Medicine MD</td>
<td>88</td>
<td>83</td>
</tr>
<tr>
<td>Nonprofit Mgmt</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Nursing DNP</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Optics &amp; Photonics</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Physics</td>
<td>85</td>
<td>55</td>
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<tr>
<td>Public Affairs</td>
<td>63</td>
<td>2</td>
</tr>
<tr>
<td>School Counseling</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>Social Work</td>
<td>78</td>
<td>23</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>65</td>
<td>23</td>
</tr>
</tbody>
</table>

IKM 2016
Orlando Megatrends and UCF’s strengths

- Nation’s largest cluster of modeling, simulation, and training companies
- Orlando has a $9 billion digital media industry and is among nation’s top 10 largest digital media clusters
- Top producing region for engineers in aviation, aerospace, and defense industry
- First U.S. destination to surpass 60 million tourists
Intellectual Anchor for Industry Clusters

- Rosen College of Hospitality Management in heart of tourism corridor
- College of Medicine in Lake Nona Medical City
- Institute for Simulation and Training in Central Florida Research Park
- UCF Downtown for digital media and healthcare technology in our urban core
- ICAMR for advanced manufacturing and next-generation technologies in Osceola County
Academic Program Presentations

Graduate Programs
• Modeling and Simulation
• Optics
• Student Counseling

Graduate and Undergraduate Programs
• Aerospace Engineering
• Digital Media
• Interactive Entertainment
• Health Management Informatics

Undergraduate Programs
• Hospitality Management
Modeling and Simulation for Training Graduate Program (MST)
The only truly trans-disciplinary program within UCF

General Content Areas of Focus

- Simulation Modeling and Analysis
- Simulation in Health Care
- Human Systems in Modeling and Simulation
- Computer Visualization in Modeling and Simulation
- Interactive Simulation and Intelligent Systems
- Simulation Infrastructure
- Simulation Management

The UCF Modeling and Simulation curricula permit students to customize their learning across UCF based on their educational and career experience, interests, and goals. Currently involves five colleges.
Graduate Programs and Enrollment

Programs Offered

1. Modeling and Simulation Ph.D.
2. Modeling and Simulation M.S.
3. Modeling and Simulation of Technical Systems Graduate Certificate (G.C.)
4. Modeling and Simulation of Behavioral Cybersecurity Graduate Certificate (G.C.) NEW!

Graduates

- M.S. 327
- Ph.D. 83
- G.C. 16

Grand Total 398

Since 2001 through Spring 2016

Would like to grow from 150 students enrolled each year to 250 by academic year 2019-20
Where Modeling and Simulation Is Expanding

• **Substantial growth opportunity in health modeling and simulation**
  – College of Nursing has created certificate program
  – Medical City, College of Medicine, College of Nursing, and COHPA
  – VA Hospital and VA SIMLEARN center in Orlando

• **Human aspects of cyber security – Certificate created**
  – Adversary culture and behavior capture and modeling
  – Individual behavior and team aspects of cyber defense
  – Insider threat behavior, modeling, and mitigation

• **Unmanned systems**
  – Human-system interface for robots
  – Incorporate robots into teams
  – Modeling team and ambient culture
Modeling and Simulation Program Needs

• **Recognition as an academic unit**
  – Ability to grant tenure
  – Ability to have SCHs, more access to graduate research assistants

• **Faculty**
  – Historically primarily Institute for Simulation and Training research faculty members and adjuncts
  – Hiring two tenure-earning faculty members, with plans to hire three more
  – Need better mechanisms for recognition of cross-unit teaching, co-teaching
  – Funding to support research faculty to teach

• **Support for students**
  – New lab equipment and funding for conferences for students
  – Additional support for master’s and doctoral students and administrative support
  – Funding for pilot studies in conjunction with other academic units
Preeminence in Biomedical Optics and Biophotonics
College of Optics and Photonics Overview

- **Rankings**
  - National Research Council: Top 5-12 among Electrical Engineering Ph.D. programs
  - *U.S. News*: 14th top atomic, molecular, and optical sciences program

- **Faculty**
  - World-renowned scholars, fellows, editors of top journals, and leaders of professional societies

- **Students and Graduates**
  - 280 Ph.D. degrees awarded
  - 400 master’s degrees awarded
  - New B.S. degree program with growing enrollment

- **Research**
  - About $15 million in external funding in 2015
  - 280 patents
  - Industrial affiliates program with 62 companies in 2016
  - 26 spin-offs and 5 incubated startups
Targets and Benchmarks

**Targets**

– Convert our nascent, fragmented bio research into a mature program integrated with clinical research at UCF College of Medicine and Orlando hospitals

– Funding targets:
  * 5 National Institutes of Health R21 grants ($300,000-$400,000 per grant)
  * 3 National Institutes of Health R01 grants (> $1 million per grant)

**Benchmarks**

– The biophotonics program at Beckman Institute (UC Irvine or University of Illinois Urbana-Champaign)

– A campus-wide institute similar to BIO5 Institute at University of Arizona (led by a Ph.D. professor and an M.D. professor)
Biophotonics Faculty and Partnerships

UCF Biophotonics Faculty

Aristide Dogariu
Konstantin Vodopyanov
Ayman Abouraddy
Sean Pang
Ryan Gelfand
Kuy Young Han

Potential Partnerships:
- Center for Research and Education in Optics and Lasers (CREOL)
- College of Engineering and Computer Science
- College of Medicine
- College of Sciences
- International Consortium for Advanced Manufacturing Research (ICAMR)
- NanoScience Technology Center at UCF
Optics and Photonics Program Needs

• Faculty
  – Establish a chaired professorship and recruit an eminent senior scientist, along with three junior faculty members
  – New faculty cluster with joint appointment in COM and in partnership with existing faculty will provide critical mass to secure large funding and possibly an externally-funded center or institute

• Resources
  – Salaries and startup for new faculty hires
  – Office and lab space
    • 1,000 square feet for offices
    • 2,000 square feet for labs on main campus
    • Additional lab space in COM and access to clinical facilities
Counselor Education Program

CEDHP Counselor Education Graduate Program Ranks Ninth Nationally

Department of Child, Family, and Community Sciences
College of Education and Human Performance
UCF Counselor Education Program Overview

**UCF Counselor Education Program**

- Ranked ninth by *U.S. News & World Report*
- Nationally accredited by CACREP
- Prepares counseling professionals to work in schools, universities, community mental health settings, institutions, hospitals, and private practices throughout Florida
- 285 graduate students enrolled

<table>
<thead>
<tr>
<th>Degrees</th>
<th>Credits Hours</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marriage, Couple, &amp; Family Therapy (M.A.)</td>
<td>63 credits</td>
<td>62 graduate students</td>
</tr>
<tr>
<td>Mental Health Counseling (M.A.)</td>
<td>63 credits</td>
<td>135 graduate students</td>
</tr>
<tr>
<td>School Counseling (M.A., M.Ed.)</td>
<td>60 credits</td>
<td>63 graduate students</td>
</tr>
<tr>
<td>Ph.D. in Education, Counselor Education</td>
<td>84 credits</td>
<td>25 doctoral students</td>
</tr>
</tbody>
</table>
Faculty and Community Engagement Vision

Faculty and Program Excellence

*Vision:* Premier counselor education faculty and program in the country

1. **Program Ranking**

2. **World-Renowned Faculty and Program**
   - Four ACA Fellows
   - ACES Outstanding Counselor Education Program

3. **Significant Federal External Research Funding**
   - Project Harmony, 2015-20; $9.7 million
   - Project Together, 2011-15; $8.7 million

4. **Professional Leadership and Impact**
   - National journal editors
   - Faculty member citations

Community Engagement

*Vision:* Greatest partnership counselor education program in the country

1. **Marriage and Family Research Institute (MFRI)**
   - Provides couple and relationship education to over 7,000 low-income and culturally-diverse couples and individuals in Central Florida

2. **Community Counseling and Research Center (CCRC)**
   - 1,800 community members served annually, equating to $1.8 million saved by the community

3. **Counseling Partnership with Seminole County Public Schools**
   - Provides over 500 free after-school counseling sessions to Title I elementary school students and their families annually
Path to Preeminence Over Next Five Years

• **Program Ranking and Recognition**
  – Increase “Best Graduate Program” ranking in *U.S. News & World Report*
  – Continue to receive programmatic national award recognition

• **Faculty Excellence and Impact**
  – Increase number of ACA Fellows
  – Increase number of faculty scholarly research citations

• **Significant External Research Funding**
  – Increase external federal research funding by $1 million

• **Community Engagement**
  – Continue enhancing partnerships with school districts and agencies

• **Maximize Counselor Education Doctoral Students’ Research Productivity**
  – Continue increasing Ph.D. student graduates’ placement in tenure-track positions at research-intensive universities
Aerospace Engineering Program
Aerospace Engineering Overview

- **Seven Core Faculty Members**
- **One Center**
  - Center for Advanced Turbomachinery and Energy Research (CATER)
  - Seven core faculty from the aerospace, mechanical, and civil engineering programs
- **Research Areas**
  - Combustion
  - Propulsion
  - Aerodynamics
  - Structural dynamics and adaptive structures
  - Mechanics of aerospace materials and structures
  - High-temperature coatings
  - Alternative fuels
  - Laser diagnostics
  - Shock wave physics and chemistry
  - Control for single or cooperative vehicles
  - Guidance and navigation
- **Research Expenditures**
  - $1 million – $1.5 million annually
Vision: Areas of Excellence

An Internationally Prominent Aerospace Program

Rocket/Aero/Space Propulsion
Structures and Manufacturing
Autonomous Unmanned Air Vehicles

Faculty, Ph.D. Students, Infrastructure, Prestigious Funding
Traits of a Prominent Aerospace Program

• High-caliber faculty, including National Academy of Engineering (NAE) members
• Top 20 program in the nation, according to *U.S. News & World Report*
• Two or three distinct areas of excellence
• Unique, multi-million dollar infrastructure
  – High-end subsonic, transonic, and supersonic wind tunnel facilities
• Excellent Ph.D. students
  – Enrollment: 40-50
  – Graduation rate: 10-15 annually
• Publications in elite journals
• Large, prestigious funding awards
  – Several multi-million dollar, multi-year awards
  – Average annual research expenditure of $300,000-$400,000 per faculty member
• High visibility across government agencies and scientific communities
Pillar One: Rocket/Aero/Space Propulsion

- **People**
  - Five new faculty lines to add to the existing 11 current or incoming CATER faculty
  - 20 Ph.D. fellowships
  - Four post-doctoral associates

- **Infrastructure**
  - High-temperature, high-pressure wind tunnels
  - Flexible additive manufacturing TestBed
  - High-pressure shock tube

- **Strategic Collaborators**
  - Institute for Simulation and Training, College of Optics and Photonics, International Consortium for Advanced Manufacturing Research, Physics, and Chemistry

- **Funding**

- **Funding Target**
  - $5 million per year of new funding
Pillar Two: Structures and Manufacturing

- **People**
  - Three new faculty lines
  - Five Ph.D. fellowships
  - Five post-doctoral associates

- **Infrastructure**
  - Structures and structural dynamics integrity testing facility
  - Advanced manufacturing facility (laser and e-beam additive and removal)

- **Strategic Collaborators**
  - College of Optics and Photonics, International Consortium for Advanced Manufacturing Research, Institute for Simulation and Training, and Florida Space Institute

- **Funding Target**
  - $2 million per year of new funding
Pillar Three: Autonomous, Un-manned Air Vehicles

• **People**
  – A National Academy of Engineering member
  – Two new faculty lines (aerodynamics, operation, and traffic management)
  – Three Ph.D. fellowships
  – Two post-doctoral associates

• **Infrastructure**
  – 20-foot high, 2,000-square-foot hanger
  – Test field

• **Strategic Collaborators**
  – College of Engineering and Computer Science, Institute for Simulation and Training, Kennedy Space Center, and agriculture stations around Florida

• **Potential Funding Resource**
  – National Science Foundation, Air Force Office of Scientific Research, Florida Transportation, Army, Office of Naval Research, U.S. Department of Agriculture

• **Funding Target**
  – $2 million per year of new funding
Preeminence in Digital Media Programs
Digital Media Overview

• **Rankings**
  – *Animation Career Review*: No. 20 out of 50
  – *Top 50 Game Design Schools and Colleges in the U.S., 2016*: No. 5 out of 10 in the South

• **Faculty and Students**
  – 18 faculty and about 800 undergraduate majors within the School of Visual Arts and Design

• **Degree Programs**
  – Undergraduate emphasis on game design, web design, and character animation
  – B.A., M.A., and M.F.A. programs and alliance with Texts and Technology Ph.D. program

• **Research**
  – Interdisciplinary backgrounds bridging storytelling, art, and technology
Benchmarks


• **Benchmark institutions:** University of Florida, Carnegie Mellon’s Entertainment Technology Center, Georgia Tech

• Academic program review
• State performance metrics
• Student engagement metrics
• External research funding data
• Data indicating impact on local, regional, and state economy (internships secured, career placement, etc.)
Vision

• To offer premier digital media undergraduate programs and nationally-recognized graduate programs known for academic rigor, technological innovation, community engagement, and economic impact

Path to Preeminence

• Facilitate “lab to classroom” and “classroom to lab” models for student-engaged research collaborations

• Build nationally recognized models for student support, advising, and alumni success

• Create a strong externally-funded research program (more than $2 million a year) with graduate student involvement

• Catalyze entrepreneurship and commercialization for student- and faculty-led initiatives

• Support active and vibrant industry partnerships, especially downtown
Digital Media Program Needs

• Bring UCF in line with top-tier national programs in terms of student-faculty instructional ratios

• Allow more time for conducting research and mentoring graduate students

• Create a research cluster with senior leadership in an emerging research area of strategic importance to UCF (e.g., Internet of things, VR, games, or mobile)
Who We Are
The Florida Interactive Entertainment Academy and UCF’s Center for Emerging Media are home to a diverse group of teachers, learners, and industry professionals collaborating in a creative environment that emphasizes high-production values, cutting-edge technologies, and time-tested production techniques.
Interactive Entertainment Overview

Top 5 National Recognition
• Currently ranked No. 1 by *The Princeton Review* for North American Graduate Programs

What Works?
• Innovative Learning Models
  – Student development focus
  – Rigor and consistent advising
• Access
  – Connector to learning environments
  – Pipeline to community and industries
• Impact
  – Diverse employment creator
  – Global branding
  – Life-long learning
Program Results

- Over 80 percent of each class hired in desired field
- 130+ companies have hired graduates
- Average starting salary of $63,000
- Credibility with industries

Competitive programs include: University of Southern California, Southern Methodist University, Carnegie Mellon, and University of Utah
Vision
FIEA will be the anchor of a leading education and industry cluster that will enable Central Florida to compete with Silicon Valley and Central Texas as the East Coast leader and a global technology hub

Metrics
• Industry leader in job creation – placement rate and average starting salaries
• *The Princeton Review* – No. 1-ranked North American Graduate Program (top five since inception)
• Recognized as a community partner
• Expand in strategic areas of research and partnerships
Entrepreneurship
• Expand FIEA Ventures and startup opportunities

Leadership (Academy)
• Development and diversity focus
• Production and art specific
• Additional faculty and staff

Research
• UCF colleges and target industries
• Collaboration with FIEA Ventures
• STEM funding opportunities
“Using Informatics to Connect Individuals, Communities, and Populations”
Health Management and Informatics Overview

College of Engineering and Computer Science
College of Health and Public Affairs
College of Medicine
College of Nursing
Institute for Simulation and Training

Health Care Informatics and Information Management
Vision

Become the premier informatics program in the nation by leveraging informatics to connect individuals, communities, and populations; thus, transforming the delivery of healthcare.
Assessing Impact

• Registered Health Information Administrator (RHIA) pass rate 90 percent (National average 75 percent)

• Enrollment increase of 20 percent by 2020

• Top 5 informatics program nationally within five years

• Nationally-recognized and ranked Ph.D. program by Year 10

• Center for Healthcare Informatics and Policy will secure at least $1 million in external funding by Year 4

• Become the leader and preferred partner for healthcare informatics research
Rosen College of Hospitality Management

Leading the Way of Hospitality Education
Hospitality Management Overview

• The fastest-growing and the second-largest hospitality management program in the world
  – Consistently ranked among the top three or top five programs worldwide

Undergraduate programs
• Hospitality Management
• Foodservice and Lodging Management
• Event Management
• Entertainment Management

Minors
• Hospitality Management
• Event Management

Program tracks
• Theme Parks and Attractions Management
• Professional Tennis Management

Graduate programs
• Hospitality and Tourism Management M.S.
• M.S. dual degrees with Portugal, Italy, and China
• M.S. for medical students
• Destination Marketing and Management (Certificate)
• Event Management (Certificate)
• Hospitality Management Ph.D. (only one in Florida, one of seven in U.S.)

How did we do it?
By leveraging size and location to create and sustain a culture of hospitality, entrepreneurship, and innovation
Vision
• Be the recognized leader in hospitality and tourism education, research, scholarship, and industry partnership worldwide
• Be ranked as the world’s No. 1 comprehensive hospitality management program by 2020

Mission
• Four-year mission to explore new fields of endeavor, to seek out new educational and research opportunities, and to boldly go where no hospitality program has gone before

Core Values
• Professionalism
• Leadership
• Service

Benchmarking Institution
• Cornell Hotel School
Road Map for the Future

HOSPITALITY MANAGEMENT AND THE HEDONIC-UTILITARIAN SCALE

HEDONIC

Entertainment  Leisure Tourism  Restaurants Hotels Sport Clubs  Business Tourism Events  Inst. FS

UTILITARIAN

Senior Living (ALF, CCRC)  Health Care Hospitals Medical Centers
Hospitality Management Program Needs

Enabling the Rosen College to be the best of its kind by expanding its reach into the healthcare industry

• Create an undergraduate degree program in Senior Living Management in partnership with the College of Nursing
  – This degree will prepare young women and men to work in the burgeoning industry of institutionalized senior living industry
  – A close examination of the operation of all senior living facilities will reveal that the highest common denominator among all of them is the provision of hospitality services such as accommodation, food service, recreation, entertainment, and opportunities to socialize
  – Medical and nursing services are crucial, as they are the “push” factor that bring clients to these facilities in general, but the quality of hospitality services are the “pull” factor that make clients choose one facility over another
Core Strategies to Achieve Preeminence

• How do we get there?
  – Investing in key talent
  – Investing in infrastructure
  – Defining our distinctive strengths and discovering areas of opportunity
  – Making tough decisions
University Budget Process

- **Decentralized Budget Decisions**
  - Unit or college
  - Division
  - Central

- **Hybrid Budget Model**
  - Base budget
  - Incremental allocations

- **Translate Strategic Goals into Operating Plans**

- **Carryforward**
  - Three-year plan
  - Reallocation

- **Annual Exceptional Funding Request Process**

- **Focus on Strategic Allocations**

- **12 Member University Budget Committee**
Learning from Our Successes

• History of innovation and entrepreneurship

• Developing nationally-renowned centers and institutes of excellence

• Faculty-driven academic programs that leverage our strengths and find unique areas of opportunity
Contributions of the Centers and Institutes
Major UCF Research Centers and Institutes

- Institute for Simulation and Training (IST)
- Center for Research and Education in Optics and Lasers (CREOL)
- Florida Solar Energy Center (FSEC)
- Florida Space Institute (FSI)
- NanoScience Technology Center (NSTC)
- Center for Research in Computer Vision (CRCV)
- Advanced Materials Processing and Analysis Center (AMPAC)
- Burnett School of Biomedical Sciences (BSBS)
Centers and Institutes’ Accomplishments

• Four offer internationally-recognized research and graduate programs
  – Institute for Simulation and Training (IST)
  – Center for Research and Education in Optics and Lasers (CREOL)
  – NanoScience Technology Center (NSTC)
  – Center for Research in Computer Vision (CRCV)

• Very high impact on the Florida economy
  – New companies created and new patents awarded

• Four units consistently produce more than 50 percent of all research grants within UCF
  – College of Engineering and Computer Science, IST, CREOL, and College of Sciences

• Pioneering how UCF will substantially grow research
  – Research faculty and trans-disciplinary clusters
Creating New Opportunities

- ICAMR
- Applied Research Institute
- Faculty Cluster Initiative
The world’s first industry-led consortium (501c6 non-profit) for the manufacturing of smart sensors

International Consortium for Advanced Manufacturing Research
Goals

World-class facility that supports state-of-the-art R&D and positions Central Florida to be an early leader in the evolution of the global $32.5 trillion per year sensor-driven economy.
Startup Funding of Over $200 Million

**Osceola County**
- $168 million from Osceola County
- **Design, build, and equip** 100,000-square-foot center
- **20 acres**, plus in-kind support for power, water, and waste disposal

**UCF**
- **$10 million** non-state and non-tuition funds to design and build center and start-up costs
- **$7 million** in-kind for focused hires and resource support
- **30-year lease** of center from Osceola County at $1 per year

**FHTCC**
- **$1 million** for initial operating cost
- **Up to $5 million** matching funds over five years for specific research projects
- **$750,000** from USF, FIU, and UF

**State of FL**
- **$5 million** per year for operations
- **$10 million** tools and equipment
- **$2 million** QACF
A New Era of International Collaboration

Innovation networks and open innovation programs that bring industry, universities, and governments together

**Industry**
- Emerging technologies
- Opens access to lowest-cost manufacturing

**Universities**
- Universities in U.S., Europe, and Asia
- Enables competitive pursuits in expanded areas of interest
- New ideas and approaches

**Government**
- State of Florida
- National research labs and agencies
- Attract joint funds

**Suppliers**
- Equipment
- Materials
- Software
- Industry R&D labs and programs
Industry and Government

Increasing industry and government interest in ICAMR

• Enabled UCF to secure a significant role on the MIT-lead and Department of Defense-sponsored $300 million+ smart fiber National Network of Manufacturing Innovation (NNMI)

• Lead partner for a $349 million advanced sensors DOC NNMI (under evaluation)

• Supporting University of Texas on a $200 million+ Department of Energy initiative (under evaluation)

• Finalizing our design center concept (announcement expected July 2016)

• First multi-million dollar industry project for the design center identified

• Building complete March 2017
UCF Applied Research Institute

- Launched by the Research Foundation to assist in securing large collaborative research projects and enhance the university’s interdisciplinary work and growing partnerships

- Help bridge the technology “valley of death” – the chasm that often occurs between basic research and innovation

- Create a centralized location where faculty members can team together to apply for grants, and where students can find resources, training, and research opportunities in areas where funding is available

- Initially focus on areas that align with Florida’s economic development needs, such as photonics, modeling and simulation, engineering, and biomedicine
Faculty Cluster Initiative

• Interdisciplinary teaching and research initiative hiring 33 new faculty members
  – Cyber Security and Privacy
  – Energy Conversion and Propulsion
  – Genomics and Bioinformatics
  – Prosthetic Interfaces
  – Renewable Energy Systems
  – Sustainable Coastal Systems

• Each of these clusters involves faculty members from multiple colleges and departments – many from UCF’s top 100-ranked programs by *U.S. News & World Report*
Why Faculty Clusters?

• Exploring solutions to today’s toughest scientific and societal challenges at the fringes of disciplines – with broad applications across different issues

• Hiring top talent who will advance UCF’s impact as a metropolitan research university

• Developing new academic programs and research opportunities
What Makes UCF’s Faculty Clusters Unique?

  - Engineering, Computer Science, Photovoltaics (CREOL), Public Administration and Policy, Business Administration
  - No interdisciplinary power systems graduate programs currently exist
  - Builds upon UCF’s local industry partnerships and federal funding priorities

- **Cyber Security and Privacy**
  - Computer Science, Electrical and Computer Engineering, Psychology, Industrial Engineering and Management Systems, Modeling and Simulation, Political Science, Statistics
  - Ties multiple disciplines together within a strategic framework
  - Builds upon UCF’s prominence in cyber security – 3-time collegiate cyber defense national champions and new NSA Center of Academic Excellence in Cyber Defense
Concluding Thoughts

- Importance of our strategic planning process
- The need to leverage our unique strengths in Central Florida environment
- The courage to make decisions that will produce the greatest impact
Top Academic Programs and National Preeminence

May 13, 2016
National Academic Preeminence

• What it is
• What it means
• Reputation through impact

• This session considers the resources necessary to advance strong academic programs at UCF to national preeminence
National Preeminence Rankings

- Various rankings can serve as proxy for national preeminence, including:
  - *U.S. News and World Report* – Best Graduate Colleges
  - *The Princeton Review* – Top Gaming Programs
U.S. News Graduate Program Rankings

- “Specialty” rankings based solely on nominations from school deans from the list of schools surveyed
- Can select up to 10 top programs in each area
- Numerically ranked in descending order based on number of nominations received
- At least seven nominations must be received to be ranked
Graduate Program Rankings vs. Degrees Awarded

U.S. News 2017 Ranking

- Education
- Engineering
- Medical
- Nursing
- Public Affairs
- Science
- Social Sciences & Humanities

IKM 2016
Orlando Megatrends and UCF’s strengths

• Nation’s largest cluster of modeling, simulation, and training companies

• Orlando has a $9 billion digital media industry and is among nation’s top 10 largest digital media clusters

• Top producing region for engineers in aviation, aerospace, and defense industry

• First U.S. destination to surpass 60 million tourists
Intellectual Anchor for Industry Clusters

- Rosen College of Hospitality Management in heart of tourism corridor
- College of Medicine in Lake Nona Medical City
- Institute for Simulation and Training in Central Florida Research Park
- UCF Downtown for digital media and healthcare technology in our urban core
- ICAMR for advanced manufacturing and next-generation technologies in Osceola County
Academic Program Presentations

Graduate Programs
• Modeling and Simulation
• Optics
• Student Counseling

Graduate and Undergraduate Programs
• Aerospace Engineering
• Digital Media
• Interactive Entertainment
• Health Management Informatics

Undergraduate Programs
• Hospitality Management
Modeling and Simulation for Training Graduate Program (MST)
The UCF Modeling and Simulation curricula permit students to customize their learning across UCF based on their educational and career experience, interests, and goals. Currently involves five colleges.
Graduate Programs and Enrollment

Would like to grow from 150 students enrolled each year to 250 by academic year 2019-20
Where Modeling and Simulation Is Expanding

• **Substantial growth opportunity in health modeling and simulation**
  – College of Nursing has created certificate program
  – Medical City, College of Medicine, College of Nursing, and COHPA
  – VA Hospital and VA SIMLEARN center in Orlando

• **Human aspects of cyber security – Certificate created**
  – Adversary culture and behavior capture and modeling
  – Individual behavior and team aspects of cyber defense
  – Insider threat behavior, modeling, and mitigation

• **Unmanned systems**
  – Human-system interface for robots
  – Incorporate robots into teams
  – Modeling team and ambient culture
Modeling and Simulation Program Needs

• **Recognition as an academic unit**
  – Ability to grant tenure
  – Ability to have SCHs, more access to graduate research assistants

• **Faculty**
  – Historically primarily Institute for Simulation and Training research faculty members and adjuncts
  – Hiring two tenure-earning faculty members, with plans to hire three more
  – Need better mechanisms for recognition of cross-unit teaching, co-teaching
  – Funding to support research faculty to teach

• **Support for students**
  – New lab equipment and funding for conferences for students
  – Additional support for master’s and doctoral students and administrative support
  – Funding for pilot studies in conjunction with other academic units
Preeminence in Biomedical Optics and Biophotonics
College of Optics and Photonics Overview

• **Rankings**
  – National Research Council: Top 5-12 among Electrical Engineering Ph.D. programs
  – *U.S. News*: 14th top atomic, molecular, and optical sciences program

• **Faculty**
  – World-renowned scholars, fellows, editors of top journals, and leaders of professional societies

• **Students and Graduates**
  – 280 Ph.D. degrees awarded
  – 400 master’s degrees awarded
  – New B.S. degree program with growing enrollment

• **Research**
  – About $15 million in external funding in 2015
  – 280 patents
  – Industrial affiliates program with 62 companies in 2016
  – 26 spin-offs and 5 incubated startups
Targets and Benchmarks

• **Targets**
  – Convert our nascent, fragmented bio research into a mature program integrated with clinical research at UCF College of Medicine and Orlando hospitals
  – Funding targets:
    • 5 National Institutes of Health R21 grants ($300,000-$400,000 per grant)
    • 3 National Institutes of Health R01 grants (> $1 million per grant)

• **Benchmarks**
  – The biophotonics program at Beckman Institute (UC Irvine or University of Illinois Urbana-Champaign)
  – A campus-wide institute similar to BIO5 Institute at University of Arizona (led by a Ph.D. professor and an M.D. professor)
Potential Partnerships:
- Center for Research and Education in Optics and Lasers (CREOL)
- College of Engineering and Computer Science
- College of Medicine
- College of Sciences
- International Consortium for Advanced Manufacturing Research (ICAMR)
- NanoScience Technology Center at UCF
Optics and Photonics Program Needs

- **Faculty**
  - Establish a chaired professorship and recruit an eminent senior scientist, along with three junior faculty members
  - New faculty cluster with joint appointment in COM and in partnership with existing faculty will provide critical mass to secure large funding and possibly an externally-funded center or institute

- **Resources**
  - Salaries and startup for new faculty hires
  - Office and lab space
    - 1,000 square feet for offices
    - 2,000 square feet for labs on main campus
    - Additional lab space in COM and access to clinical facilities
Counselor Education Program

Department of Child, Family, and Community Sciences
College of Education and Human Performance
Counselor Education Program Overview

UCF Counselor Education Program

• Ranked ninth by *U.S. News & World Report*
• Nationally accredited by CACREP
• Prepares counseling professionals to work in schools, universities, community mental health settings, institutions, hospitals, and private practices throughout Florida
• 285 graduate students enrolled

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<tr>
<th>Degrees</th>
<th>Credits Hours</th>
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<tr>
<td>Marriage, Couple, &amp; Family Therapy (M.A.)</td>
<td>63 credits</td>
<td>62 graduate students</td>
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<td>Ph.D. in Education, Counselor Education</td>
<td>84 credits</td>
<td>25 doctoral students</td>
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Faculty and Community Engagement Vision

Faculty and Program Excellence

Vision: Premier counselor education faculty and program in the country

1. Program Ranking

2. World-Renowned Faculty and Program
   – Four ACA Fellows
   – ACES Outstanding Counselor Education Program

3. Significant Federal External Research Funding
   – Project Harmony, 2015-20; $9.7 million
   – Project Together, 2011-15; $8.7 million

4. Professional Leadership and Impact
   – National journal editors
   – Faculty member citations

Community Engagement

Vision: Greatest partnership counselor education program in the country

1. Marriage and Family Research Institute (MFRI)
   – Provides couple and relationship education to over 7,000 low-income and culturally-diverse couples and individuals in Central Florida

2. Community Counseling and Research Center (CCRC)
   – 1,800 community members served annually, equating to $1.8 million saved by the community

3. Counseling Partnership with Seminole County Public Schools
   – Provides over 500 free after-school counseling sessions to Title I elementary school students and their families annually
Path to Preeminence Over Next Five Years

• **Program Ranking and Recognition**
  – Increase “Best Graduate Program” ranking in *U.S. News & World Report*
  – Continue to receive programmatic national award recognition

• **Faculty Excellence and Impact**
  – Increase number of ACA Fellows
  – Increase number of faculty scholarly research citations

• **Significant External Research Funding**
  – Increase external federal research funding by $1 million

• **Community Engagement**
  – Continue enhancing partnerships with school districts and agencies

• **Maximize Counselor Education Doctoral Students’ Research Productivity**
  – Continue increasing Ph.D. student graduates’ placement in tenure-track positions at research-intensive universities
Aerospace Engineering Program
Aerospace Engineering Overview

- **Seven Core Faculty Members**
- **One Center**
  - Center for Advanced Turbomachinery and Energy Research (CATER)
  - Seven core faculty from the aerospace, mechanical, and civil engineering programs
- **Research Areas**
  - Combustion
  - Propulsion
  - Aerodynamics
  - Structural dynamics and adaptive structures
  - Mechanics of aerospace materials and structures
  - High-temperature coatings
  - Alternative fuels
  - Laser diagnostics
  - Shock wave physics and chemistry
  - Control for single or cooperative vehicles
  - Guidance and navigation
- **Research Expenditures**
  - $1 million – $1.5 million annually
Vision: Areas of Excellence

An Internationally Prominent Aerospace Program

- Rocket/Aero/Space Propulsion
- Structures and Manufacturing
- Autonomous Unmanned Air Vehicles

Faculty, Ph.D. Students, Infrastructure, Prestigious Funding
Traits of a Prominent Aerospace Program

- High-caliber faculty, including National Academy of Engineering (NAE) members
- Top 20 program in the nation, according to *U.S. News & World Report*
- Two or three distinct areas of excellence
- Unique, multi-million dollar infrastructure
  - High-end subsonic, transonic, and supersonic wind tunnel facilities
- Excellent Ph.D. students
  - Enrollment: 40-50
  - Graduation rate: 10-15 annually
- Publications in elite journals
- Large, prestigious funding awards
  - Several multi-million dollar, multi-year awards
  - Average annual research expenditure of $300,000-$400,000 per faculty member
- High visibility across government agencies and scientific communities
Pillar One: Rocket/Aero/Space Propulsion

• **People**
  – Five new faculty lines to add to the existing 11 current or incoming CATER faculty
  – 20 Ph.D. fellowships
  – Four post-doctoral associates

• **Infrastructure**
  – High-temperature, high-pressure wind tunnels
  – Flexible additive manufacturing TestBed
  – High-pressure shock tube

• **Strategic Collaborators**
  – Institute for Simulation and Training, College of Optics and Photonics, International Consortium for Advanced Manufacturing Research, Physics, and Chemistry

• **Funding**

• **Funding Target**
  – $5 million per year of new funding
Pillar Two: Structures and Manufacturing

- **People**
  - Three new faculty lines
  - Five Ph.D. fellowships
  - Five post-doctoral associates

- **Infrastructure**
  - Structures and structural dynamics integrity testing facility
  - Advanced manufacturing facility (laser and e-beam additive and removal)

- **Strategic Collaborators**
  - College of Optics and Photonics, International Consortium for Advanced Manufacturing Research, Institute for Simulation and Training, and Florida Space Institute

- **Funding Target**
  - $2 million per year of new funding
Pillar Three: Autonomous, Un-manned Air Vehicles

- **People**
  - A National Academy of Engineering member
  - Two new faculty lines (aerodynamics, operation, and traffic management)
  - Three Ph.D. fellowships
  - Two post-doctoral associates

- **Infrastructure**
  - 20-foot high, 2,000-square-foot hanger
  - Test field

- **Strategic Collaborators**
  - College of Engineering and Computer Science, Institute for Simulation and Training, Kennedy Space Center, and agriculture stations around Florida

- **Potential Funding Resource**
  - National Science Foundation, Air Force Office of Scientific Research, Florida Transportation, Army, Office of Naval Research, U.S. Department of Agriculture

- **Funding Target**
  - $2 million per year of new funding
Preeminence in Digital Media Programs
Digital Media Overview

• **Rankings**
  – *Animation Career Review*: No. 20 out of 50
  – *Top 50 Game Design Schools and Colleges in the U.S., 2016*: No. 5 out of 10 in the South

• **Faculty and Students**
  – 18 faculty and about 800 undergraduate majors within the School of Visual Arts and Design

• **Degree Programs**
  – Undergraduate emphasis on game design, web design, and character animation
  – B.A., M.A., and M.F.A. programs and alliance with Texts and Technology Ph.D. program

• **Research**
  – Interdisciplinary backgrounds bridging storytelling, art, and technology
Benchmarks


• **Benchmark institutions**: University of Florida, Carnegie Mellon’s Entertainment Technology Center, Georgia Tech

• Academic program review

• State performance metrics

• Student engagement metrics

• External research funding data

• Data indicating impact on local, regional, and state economy (internships secured, career placement, etc.)
Vision

• To offer premier digital media undergraduate programs and nationally-recognized graduate programs known for academic rigor, technological innovation, community engagement, and economic impact

Path to Preeminence

• Facilitate “lab to classroom” and “classroom to lab” models for student-engaged research collaborations
• Build nationally recognized models for student support, advising, and alumni success
• Create a strong externally-funded research program (more than $2 million a year) with graduate student involvement
• Catalyze entrepreneurship and commercialization for student- and faculty-led initiatives
• Support active and vibrant industry partnerships, especially downtown
Digital Media Program Needs

• Bring UCF in line with top-tier national programs in terms of student-faculty instructional ratios

• Allow more time for conducting research and mentoring graduate students

• Create a research cluster with senior leadership in an emerging research area of strategic importance to UCF (e.g., Internet of things, VR, games, or mobile)
M.S. Interactive Entertainment

Who We Are
The Florida Interactive Entertainment Academy and UCF’s Center for Emerging Media are home to a diverse group of teachers, learners, and industry professionals collaborating in a creative environment that emphasizes high-production values, cutting-edge technologies, and time-tested production techniques.
Interactive Entertainment Overview

Top 5 National Recognition

• Currently ranked No. 1 by *The Princeton Review* for North American Graduate Programs

What Works?

• **Innovative Learning Models**
  – Student development focus
  – Rigor and consistent advising

• **Access**
  – Connector to learning environments
  – Pipeline to community and industries

• **Impact**
  – Diverse employment creator
  – Global branding
  – Life-long learning
Program Results

• Over 80 percent of each class hired in desired field
• 130+ companies have hired graduates
• Average starting salary of $63,000
• Credibility with industries

Competitive programs include: University of Southern California, Southern Methodist University, Carnegie Mellon, and University of Utah
Vision
FIEA will be the anchor of a leading education and industry cluster that will enable Central Florida to compete with Silicon Valley and Central Texas as the East Coast leader and a global technology hub.

Metrics
- Industry leader in job creation – placement rate and average starting salaries
- *The Princeton Review* – No. 1-ranked North American Graduate Program (top five since inception)
- Recognized as a community partner
- Expand in strategic areas of research and partnerships
Paths to Greater Preeminence

Entrepreneurship
• Expand FIEA Ventures and startup opportunities

Leadership (Academy)
• Development and diversity focus
• Production and art specific
• Additional faculty and staff

Research
• UCF colleges and target industries
• Collaboration with FIEA Ventures
• STEM funding opportunities
“Using Informatics to Connect Individuals, Communities, and Populations”
Health Management and Informatics Overview

College of Engineering and Computer Science
College of Health and Public Affairs
College of Medicine
College of Nursing
Institute for Simulation and Training

Health Care
Informatics and
Information Management

Florida Hospital
Florida Health Care Coalition
University of South Florida
Florida International University
University of Miami
University of Florida
UCF

College of Engineering and Computer Science
College of Health and Public Affairs
College of Medicine
College of Nursing
Institute for Simulation and Training
Vision

Become the premier informatics program in the nation by leveraging informatics to connect individuals, communities, and populations; thus, transforming the delivery of healthcare.
Assessing Impact

- Registered Health Information Administrator (RHIA) pass rate 90 percent (National average 75 percent)
- Enrollment increase of 20 percent by 2020
- Top 5 informatics program nationally within five years
- Nationally-recognized and ranked Ph.D. program by Year 10
- Center for Healthcare Informatics and Policy will secure at least $1 million in external funding by Year 4
- Become the leader and preferred partner for healthcare informatics research
Hospitality Management Overview

• The fastest-growing and the second-largest hospitality management program in the world
  – Consistently ranked among the top three or top five programs worldwide

Undergraduate programs
• Hospitality Management
• Foodservice and Lodging Management
• Event Management
• Entertainment Management

Program tracks
• Theme Parks and Attractions Management
• Professional Tennis Management

Graduate programs
• Hospitality and Tourism Management M.S.
• M.S. dual degrees with Portugal, Italy, and China
• M.S. for medical students
• Destination Marketing and Management (Certificate)
• Event Management (Certificate)
• Hospitality Management Ph.D. (only one in Florida, one of seven in U.S.)

Minors
• Hospitality Management
• Event Management

How did we do it?
By leveraging size and location to create and sustain a culture of hospitality, entrepreneurship, and innovation
Vision

- Be the recognized leader in hospitality and tourism education, research, scholarship, and industry partnership worldwide
- Be ranked as the world’s No. 1 comprehensive hospitality management program by 2020

Mission

- Four-year mission to explore new fields of endeavor, to seek out new educational and research opportunities, and to boldly go where no hospitality program has gone before

Core Values

- Professionalism
- Leadership
- Service

Benchmarking Institution

- Cornell Hotel School
HOSPITALITY MANAGEMENT AND THE HEDONIC-UTILITARIAN SCALE

<table>
<thead>
<tr>
<th>HEDONIC</th>
<th>UTILITARIAN</th>
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<tbody>
<tr>
<td>Entertainment</td>
<td>Senior Living (ALF, CCRC)</td>
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<td>Leisure Tourism</td>
<td>Health Care Hospitals</td>
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<td>Restaurants</td>
<td>Medical Centers</td>
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<td>Events</td>
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Hospitality Management Program Needs

Enabling the Rosen College to be the best of its kind by expanding its reach into the healthcare industry

• Create an undergraduate degree program in Senior Living Management in partnership with the College of Nursing
  – This degree will prepare young women and men to work in the burgeoning industry of institutionalized senior living industry
  – A close examination of the operation of all senior living facilities will reveal that the highest common denominator among all of them is the provision of hospitality services such as accommodation, food service, recreation, entertainment, and opportunities to socialize
  – Medical and nursing services are crucial, as they are the “push” factor that bring clients to these facilities in general, but the quality of hospitality services are the “pull” factor that make clients choose one facility over another
• How do we get there?
  – Investing in key talent
  – Investing in infrastructure
  – Defining our distinctive strengths and discovering areas of opportunity
  – Making tough decisions
University Budget Process

Translate Strategic Goals into Operating Plans

Decentralized Budget Decisions
- Unit or college
  - Division
  - Central

Hybrid Budget Model
- Base budget
- Incremental allocations

12 Member University Budget Committee

Focus on Strategic Allocations

Annual Exceptional Funding Request Process

Carryforward
- Three-year plan
- Reallocation
Learning from Our Successes

- History of innovation and entrepreneurship
- Developing nationally-renowned centers and institutes of excellence
- Faculty-driven academic programs that leverage our strengths and find unique areas of opportunity
Contributions of the Centers and Institutes
Major UCF Research Centers and Institutes

- Institute for Simulation and Training (IST)
- Center for Research and Education in Optics and Lasers (CREOL)
- Florida Solar Energy Center (FSEC)
- Florida Space Institute (FSI)
- NanoScience Technology Center (NSTC)
- Center for Research in Computer Vision (CRCV)
- Advanced Materials Processing and Analysis Center (AMPAC)
- Burnett School of Biomedical Sciences (BSBS)
Centers and Institutes’ Accomplishments

• Four offer internationally-recognized research and graduate programs
  – Institute for Simulation and Training (IST)
  – Center for Research and Education in Optics and Lasers (CREOL)
  – NanoScience Technology Center (NSTC)
  – Center for Research in Computer Vision (CRCV)

• Very high impact on the Florida economy
  – New companies created and new patents awarded

• Four units consistently produce more than 50 percent of all research grants within UCF
  – College of Engineering and Computer Science, IST, CREOL, and College of Sciences

• Pioneering how UCF will substantially grow research
  – Research faculty and trans-disciplinary clusters
Creating New Opportunities

• ICAMR
• Applied Research Institute
• Faculty Cluster Initiative
The world’s first industry-led consortium (501c6 non-profit) for the manufacturing of smart sensors

International Consortium for Advanced Manufacturing Research
Goals

World-class facility that supports state-of-the-art R&D and positions Central Florida to be an early leader in the evolution of the global $32.5 trillion per year sensor-driven economy.
## Startup Funding of Over $200 Million

### Osceola County
- $168 million from Osceola County
- Design, build, and equip 100,000-square-foot center
- 20 acres, plus in-kind support for power, water, and waste disposal

### UCF
- $10 million non-state and non-tuition funds to design and build center and startup costs
- $7 million in-kind for focused hires and resource support
- 30-year lease of center from Osceola County at $1 per year

### FHTCC
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- $5 million per year for operations
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**Board of Trustees Retreat - Reports**
A New Era of International Collaboration

Innovation networks and open innovation programs that bring industry, universities, and governments together

**Industry**
- Emerging technologies
- Opens access to lowest-cost manufacturing

**Universities**
- Universities in U.S., Europe, and Asia
- Enables competitive pursuits in expanded areas of interest
- New ideas and approaches

**Government**
- State of Florida
- National research labs and agencies
- Attract joint funds

**Suppliers**
- Equipment
- Materials
- Software
- Industry R&D labs and programs
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• Lead partner for a $349 million advanced sensors DOC NNMI (under evaluation)

• Supporting University of Texas on a $200 million+ Department of Energy initiative (under evaluation)

• Finalizing our design center concept (announcement expected July 2016)

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• Initially focus on areas that align with Florida’s economic development needs, such as photonics, modeling and simulation, engineering, and biomedicine
Faculty Cluster Initiative

• Interdisciplinary teaching and research initiative hiring 33 new faculty members
  – Cyber Security and Privacy
  – Energy Conversion and Propulsion
  – Genomics and Bioinformatics
  – Prosthetic Interfaces
  – Renewable Energy Systems
  – Sustainable Coastal Systems

• Each of these clusters involves faculty members from multiple colleges and departments – many from UCF’s top 100-ranked programs by *U.S. News & World Report*
Why Faculty Clusters?

• Exploring solutions to today’s toughest scientific and societal challenges at the fringes of disciplines – with broad applications across different issues

• Hiring top talent who will advance UCF’s impact as a metropolitan research university

• Developing new academic programs and research opportunities
What Makes UCF’s Faculty Clusters Unique?

• **Renewable Energy Systems (RISES)**
  – Engineering, Computer Science, Photovoltaics (CREOL), Public Administration and Policy, Business Administration
  – No interdisciplinary power systems graduate programs currently exist
  – Builds upon UCF’s local industry partnerships and federal funding priorities

• **Cyber Security and Privacy**
  – Computer Science, Electrical and Computer Engineering, Psychology, Industrial Engineering and Management Systems, Modeling and Simulation, Political Science, Statistics
  – Ties multiple disciplines together within a strategic framework
  – Builds upon UCF’s prominence in cyber security – 3-time collegiate cyber defense national champions and new NSA Center of Academic Excellence in Cyber Defense
Concluding Thoughts

• Importance of our strategic planning process

• The need to leverage our unique strengths in Central Florida environment

• The courage to make decisions that will produce the greatest impact
Research Benchmarking and Strategies

May 2016
UCF Research Benchmarking

• How do research expenditures at UCF compare to the research accomplished by our peers?

• Review research expenditures for UCF, three preeminent institutions, three aspirational peers and three comparison peers

• Consider core strategies and opportunities for UCF research
UCF Research Comparison

• Benchmarking data source: 2014 National Science Foundation Higher Education Research and Development Survey (NSF HERD)
  – Total Research and Development (R&D) Expenditures
  – Detailed Federal R&D Expenditures
  – Total R&D by Broad Disciplines

• Expenditures by UCF unit

• Awards by UCF unit
## Comparison Group Characteristics (IPEDS, Fall 2013)

**Source:** Integrated Postsecondary Education Data System, Fall 2013

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<td><strong>Aspirational Peers</strong></td>
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<td>University of Cincinnati</td>
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<td>University of South Florida-Main Campus</td>
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<td>University of New Mexico-Main Campus</td>
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**Board of Trustees Retreat - Reports**
Total R&D Expenditures

### Total R&D Expenditures

<table>
<thead>
<tr>
<th>Institution</th>
<th>Expenditures</th>
</tr>
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<tbody>
<tr>
<td>OHIO STATE</td>
<td>$815.1 M</td>
</tr>
<tr>
<td>UFL</td>
<td>$708.5 M</td>
</tr>
<tr>
<td>UT AUSTIN</td>
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<td>ASU</td>
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<tr>
<td>NC STATE RALEIGH</td>
<td>$446.1 M</td>
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<tr>
<td>FIU</td>
<td>$132.5 M</td>
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<tr>
<td>NEW MEXICO</td>
<td>$228.8 M</td>
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<tr>
<td>USF</td>
<td>$488.6 M</td>
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### R&D Expenditures per Tenure/Tenure-track Faculty

<table>
<thead>
<tr>
<th>Institution</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHIO STATE</td>
<td>$327,077</td>
</tr>
<tr>
<td>UFL</td>
<td>$352,325</td>
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<td>UT AUSTIN</td>
<td>$308,351</td>
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<td>ASU</td>
<td>$336,741</td>
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<td>CINCINNATI</td>
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<td>NC STATE RALEIGH</td>
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<td>FIU</td>
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<td>NEW MEXICO</td>
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<td>USF</td>
<td>$484,763</td>
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Source: 2013-14 NSF Higher Education Research and Development Survey and Integrated Postsecondary Education Data System, Fall 2013
Average R&D Expenditures by Peer Group

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
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<tbody>
<tr>
<td>UCF</td>
<td>$185.6M</td>
</tr>
<tr>
<td>Preeminent Averages</td>
<td>$703.0M</td>
</tr>
<tr>
<td>Aspirational Averages</td>
<td>$431.9M</td>
</tr>
<tr>
<td>Comparison Averages</td>
<td>$283.3M</td>
</tr>
</tbody>
</table>

Source: 2013-14 NSF Higher Education Research and Development Survey
R&D Expenditures and Funding Sources

**Comparison** | **Aspirational** | **Preeminent** | **UCF**
--- | --- | --- | ---
Federally Financed | $151.9 M | $207.6 M | $358.9 M | $70.7 M
State & Local Govt. Financed | $12.1 M | $46.7 M | $62.7 M | $8.6 M
Business Financed | $10.6 M | $29.1 M | $74.9 M | $8. M
Nonprofit Financed | $10.4 M | $13.7 M | $33.8 M | $3.3 M
Institutionally Financed | $87.9 M | $132.5 M | $149.5 M | $90.8 M
All Other Sources | $10.5 M | $2.4 M | $23.2 M | $4.2 M

Source: 2013-14 NSF Higher Education Research and Development Survey
Federally Financed R&D Expenditures

Average Federally Financed R&D Expenditures

- **UCF**: $70.7 M
- **PREEMINENT**: $358.9 M
- **ASPIRATIONAL**: $207.6 M
- **COMPARISON**: $151.9 M

% of Federally Financed R&D Expenditures

- **UCF**: 38%
- **PREEMINENT**: 56%
- **UT AUSTIN**: 41%
- **ASU**: 57%
- **CINCINNATI**: 46%
- **NC STATE RALEIGH**: 58%
- **FIU**: 41%
- **NEW MEXICO**: 60%
- **USF**: 67%
- **COMPARISON**: 46%

Source: 2013-14 NSF Higher Education Research and Development Survey
Distribution of Federal Funding by Agencies

Source: 2013-14 NSF Higher Education Research and Development Survey

DoD
DHHS (Including NIH)
DoE
NSF
Other
NASA
USDA

Source: 2013-14 NSF Higher Education Research and Development Survey
## Other Federal Funding by Federal Agencies

**Source:** 2013-14 NSF Higher Education Research and Development Survey

### Total ED Other USAID DOT NIST VA DOL Commerce

<table>
<thead>
<tr>
<th></th>
<th>UCF</th>
<th>Preeminent</th>
<th>Aspirational</th>
<th>Comparison</th>
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<tbody>
<tr>
<td><strong>Total</strong></td>
<td>$8.9 M</td>
<td>$38.9 M</td>
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<td><strong>DOT</strong></td>
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<td><strong>NIST</strong></td>
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<td><strong>DOL</strong></td>
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### DOS Interior OPM USGS SBA NOAA EPA DOJ NIJ Treasury

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<th>Comparison</th>
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<td>$1.4 M</td>
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<td><strong>OPM</strong></td>
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<td>$1.3 M</td>
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<td><strong>USGS</strong></td>
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<td>$.6 M</td>
</tr>
<tr>
<td><strong>SBA</strong></td>
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<td>$1. M</td>
<td>$.5 M</td>
</tr>
<tr>
<td><strong>NOAA</strong></td>
<td></td>
<td></td>
<td>$.7 M</td>
<td>$.5 M</td>
</tr>
<tr>
<td><strong>EPA</strong></td>
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<td>$.5 M</td>
<td>$.5 M</td>
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<td><strong>DOJ</strong></td>
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<tr>
<td><strong>NIJ</strong></td>
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<tr>
<td><strong>Treasury</strong></td>
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### VAMC IMLS DHS HUD Policy HUD NRC NPS NEH CIA BLM

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<th>Comparison</th>
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<td>$.2 M</td>
<td>$.2 M</td>
</tr>
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<td><strong>HUD Policy</strong></td>
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<td>$.2 M</td>
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<td><strong>HUD</strong></td>
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<tr>
<td><strong>NRC</strong></td>
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<tr>
<td><strong>NPS</strong></td>
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<td>$.2 M</td>
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<tr>
<td><strong>NEH</strong></td>
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<td>$.2 M</td>
<td>$.2 M</td>
</tr>
<tr>
<td><strong>CIA</strong></td>
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<tr>
<td><strong>BLM</strong></td>
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<td>$.2 M</td>
<td>$.2 M</td>
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*Source: 2013-14 NSF Higher Education Research and Development Survey*
Total R&D Expenditures by Peer Group

Source: 2013-14 NSF Higher Education Research and Development Survey

<table>
<thead>
<tr>
<th></th>
<th>UCF</th>
<th>PREEMINENT AVERAGES</th>
<th>ASPIRATIONAL AVERAGES</th>
<th>COMPARISON AVERAGES</th>
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</thead>
<tbody>
<tr>
<td>Total R&amp;D Expenditures</td>
<td>$185.6 M</td>
<td>$703.0 M</td>
<td>$431.9 M</td>
<td>$283.3 M</td>
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</table>

Source: 2013-14 NSF Higher Education Research and Development Survey
# Broad Discipline and Subdiscipline Areas

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>Aeronautical, Bioengineering and Biomedical, Chemical, Civil, Electrical, Mechanical, Metallurgical and Materials</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>Astronomy, Chemistry, Other Physical Sciences, Physics</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>Agricultural Sciences, Biological Sciences, Medical Sciences, Other Life Sciences</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>Economics, Other Social Science, Political Sciences, Sociology</td>
</tr>
<tr>
<td>Computer Sciences</td>
<td>Computer Sciences</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>Atmospheric, Earth Sciences, Oceanography, Other Environmental Sciences</td>
</tr>
<tr>
<td>Other Sciences</td>
<td>Other Sciences</td>
</tr>
<tr>
<td>Mathematical Sciences</td>
<td>Mathematical Sciences</td>
</tr>
<tr>
<td>Psychology</td>
<td>Psychology</td>
</tr>
</tbody>
</table>

*Source: 2013-14 NSF Higher Education Research and Development Survey*
Distribution by Broad Disciplines

Source: 2013-14 NSF Higher Education Research and Development Survey
### Total R&D Expenditures by Broad Disciplines

<table>
<thead>
<tr>
<th>Non-S&amp;E Fields</th>
<th>Engineering</th>
<th>Physical Sciences</th>
<th>Life Sciences</th>
<th>Social Sciences</th>
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<tr>
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<td>$42.5 M</td>
<td>$34.4 M</td>
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<td>$155.3 M</td>
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### Additional Disciplines

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<tr>
<th>Computer Sciences</th>
<th>Environmental Sciences</th>
<th>Other Sciences</th>
<th>Mathematical Sciences</th>
<th>Psychology</th>
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<tbody>
<tr>
<td><strong>UCF</strong></td>
<td>$13.0 M</td>
<td>$9.1 M</td>
<td>$9.0 M</td>
<td>$3.1 M</td>
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<td>$7.7 M</td>
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<td>$6.4 M</td>
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<td>$9.6 M</td>
<td>$5.0 M</td>
<td>$9.1 M</td>
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*Source: 2013-14 NSF Higher Education Research and Development Survey*
UCF Subdisciplines - Highest and Lowest

**Average R&D Expenditures in Top Three Programs at UCF**

<table>
<thead>
<tr>
<th></th>
<th>Physics</th>
<th>Business and Management</th>
<th>Computer Sciences</th>
</tr>
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<tr>
<td>UCF</td>
<td>$22.5 M</td>
<td>$18.8 M</td>
<td>$13.0 M</td>
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<tr>
<td>Preeminent</td>
<td>$25.6 M</td>
<td>$4.7 M</td>
<td>$30.2 M</td>
</tr>
<tr>
<td>Aspirational</td>
<td>$6.3 M</td>
<td>$2.3 M</td>
<td>$8.4 M</td>
</tr>
<tr>
<td>Comparison</td>
<td>$4.9 M</td>
<td>$3.6 M</td>
<td>$7.3 M</td>
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</table>

**Average R&D Expenditures in Bottom Three Programs at UCF**

<table>
<thead>
<tr>
<th></th>
<th>Bioengineering and Biomed. Eng.</th>
<th>Other Environmental Sc.</th>
<th>Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCF</td>
<td>$1.0 M</td>
<td>$0.3 M</td>
<td>$0.2 M</td>
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<td>Preeminent</td>
<td>$8.6 M</td>
<td>$0.6 M</td>
<td>$0.4 M</td>
</tr>
<tr>
<td>Aspirational</td>
<td>$10.9 M</td>
<td>$4.1 M</td>
<td>$0.5 M</td>
</tr>
<tr>
<td>Comparison</td>
<td>$2.5 M</td>
<td>$0.2 M</td>
<td>$0.2 M</td>
</tr>
</tbody>
</table>

Source: 2013-14 NSF Higher Education Research and Development Survey
### UCF Units with Highest R&D Expenditures

<table>
<thead>
<tr>
<th>Unit</th>
<th>R&amp;D Expenditure</th>
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</thead>
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<td>CREOL</td>
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</tr>
<tr>
<td>IST</td>
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</tr>
<tr>
<td>Florida Space Institute</td>
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<tr>
<td>FSEC</td>
<td>$6.2 M</td>
</tr>
<tr>
<td>SDES</td>
<td>$6.0 M</td>
</tr>
<tr>
<td>ORC</td>
<td>$5.3 M</td>
</tr>
<tr>
<td>Physics</td>
<td>$5.1 M</td>
</tr>
<tr>
<td>EECS - ECE Division</td>
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</tr>
<tr>
<td>EECS - CS Division</td>
<td>$4.2 M</td>
</tr>
<tr>
<td>Sch. of Biomed. Sci.</td>
<td>$2.9 M</td>
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</tbody>
</table>

Source: 2014-15 Program Review Data
Advancing UCF Research

• What are the strategies for increasing UCF’s research activities?

• 2020 research challenge
• Core strategies to enhance research
• External review
### UCF Research Awards – Challenge 2020

<table>
<thead>
<tr>
<th>Unit</th>
<th>Awards</th>
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<tbody>
<tr>
<td>College of Engineering and Computer Science</td>
<td>$24,433,757</td>
</tr>
<tr>
<td>College of Optics and Photonics</td>
<td>$14,708,936</td>
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<tr>
<td>College of Sciences</td>
<td>$13,740,768</td>
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<tr>
<td>Burnett School of Biomedical Sciences</td>
<td>$6,282,913</td>
</tr>
<tr>
<td>College of Education and Human Performance</td>
<td>$5,999,503</td>
</tr>
<tr>
<td>College of Health and Public Affairs</td>
<td>$3,928,377</td>
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<tr>
<td>College of Nursing</td>
<td>$1,639,248</td>
</tr>
<tr>
<td>College of Medicine without Burnett</td>
<td>$599,082</td>
</tr>
<tr>
<td>College of Arts and Humanities</td>
<td>$561,343</td>
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<td>College of Business Administration</td>
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<tr>
<td>Rosen College of Hospitality Management</td>
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<tr>
<td>Institute for Simulation and Training</td>
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<tr>
<td>Other</td>
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<tr>
<td>Florida Space Institute</td>
<td>$13,149,186</td>
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<tr>
<td>Office of Research and Commercialization</td>
<td>$5,472,157</td>
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<tr>
<td>Florida Solar Energy Center</td>
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<td>NanoScience Technology Center</td>
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<tr>
<td>Advanced Materials Processing and Analysis Center</td>
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<tr>
<td>Center for Research in Computer Vision</td>
<td>$1,486,763</td>
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</tbody>
</table>

**Challenge 2020:**

$250 million, an 87% increase
Core Strategies

- Invest in quality talent
- Invest in critical infrastructure
• Using performance funding to grow our faculty
  – Goal of 200 new faculty positions to increase tenured and tenure-track faculty by 25 percent
  – Six inaugural teaching and research clusters focused on developing new academic programs and new research programs

• 2015-16 new faculty members’ research awards total more than $5.1 million
Investing in Infrastructure

• Space is our greatest barrier and top priority for growing research programs
  – 67.1% deficit (618,214 sq ft) in research labs
  – 26.4% deficit (259,853 sq ft) in office space
  (Source: Fixed Capital Outlay Space Needs, Florida Board of Governors)

• 15 new academic buildings constructed in last 10 years, adding more than 1 million square feet
  – Physical Sciences, Biomedical, College of Medicine, AMPAC, Simulation, Engineering
  – $343 million in project costs
Investing in Infrastructure

• Five new academic buildings expected to be acquired or constructed in next three years, adding more than 477,000 square feet
  – Global UCF
  – Interdisciplinary Research and Incubator Facility
  – Trevor Colbourn Hall
  – Partnership IV
  – UCF Downtown Academic Building

• $160.2 million in total project costs
• **External consultant team**
  – Dr. Sethuraman "Panch" Panchanathan, *Executive VP for ASU Knowledge Enterprise*
  – Dr. Marion K. Underwood, *Dean of Graduate Studies and Associate Provost at UT Dallas*
  – Dr. Caroline Whitacre, *VP for Research at The Ohio State University*

• **Internal representative**
  – Dr. David Hagan, *Associate Dean of Academic Programs, College of Optics and Photonics*
External Review Recommendations

• Strategically hire mid-career and senior faculty with funded, programmatic research and incentivize faculty actively engaged in securing funding

• Provide business development for expanding UCF’s research portfolio and success, including expanding Washington, D.C., presence and identifying new funding opportunities

• Diversify research portfolio and increase corporate engagement. Focus on key areas of engagement so UCF can become a full-fledged partner with a select number of key industry partners

• Invest in infrastructure and graduate education and post-doctoral training
VP for Research and Dean of Graduate Studies

- National search for a combined leadership position
  - Provide overall vision and advance UCF’s impact of discovery by growing graduate education and research in both scale and quality
  - Support interdisciplinary academic programs, institutes, initiatives, and corporate engagement programs
  - Champion post-doctoral programs, sponsored research, partnerships, IP management, and entrepreneurship
Discussion
Central Florida Higher Education Competitors

BOARD OF TRUSTEES RETREAT

MAY 13, 2016
A horse never runs so fast as when he has other horses to catch up and outpace.

OVID, *Roman Poet*
Our Market
63,002
Fall 2015 Enrollment

212 Degrees Offered
93 Bachelor’s, 84 Master’s
31 Doctoral, 3 Specialist, 1 Professional

16,585
Degrees Awarded in 2014

Source: UCF IKM, 2015
Household Income Distribution

Provides percentages of Central Florida household incomes, compared with 2014-15 undergraduates graduating. Sources: 2014 American Community Survey; 2014-15 FAFSA, 42.8% unknown for undergraduates graduating.
Demographics

UCF Student Population

- White
- Hispanic and Latino
- African-American
- Asian
- Multi-racial
- Other or Not Specified
- Nonresident Alien (UCF only)

Orlando MSA Population

- White
- Hispanic and Latino
- African-American
- Multi-racial
- Other or Not Specified
- Nonresident Alien (UCF only)

Sources: UCF IKM, 2015; Orlando Economic Development Commission, ESRI 2015 - Estimates
Orlando Market
Orlando-Kissimmee-Sanford MSA

2.3 Million
Population

239,106
Population, Age 18-24

2.1%
Predicted Annual Growth Through 2019

Sources: Orlando Economic Development Commission; UCF Institute for Economic Competitiveness, 2016
Postsecondary Education Student Pipeline

165,000 Florida high school students graduating annually through 2019-20

63% go on to some postsecondary education

92% of UCF’s students are Florida residents

Postsecondary Education Demand

More than 60% of Florida jobs will require postsecondary education or training by 2020

3.8 million more high-quality postsecondary credentials needed by 2025

26.5% increase in postsecondary degrees awarded in Florida from 2008-09 to 2012-13

Source: Florida College Access Summit, 2014
Our goal is to be a large-scale institution that can meet the needs and the demands for higher education.

JOHN C. HITT
Our Value Proposition
”[UCF is] in the vanguard of an insurgency that aims to demolish the popular belief that exclusivity is a virtue in higher education.”

“…a seamless pipeline of social mobility.”
Higher Education Providers
40+ postsecondary institutions within a 50-mile radius of UCF’s main campus

20+
For-profit institutions

$19,500
Average Annual Cost

14
Private institutions

5,000
Average Undergraduate Enrollment

8
Public institutions

Source: U.S. Department of Education College Scorecard, 2016
## Comparison With For-Profit Institutions

<table>
<thead>
<tr>
<th></th>
<th>UCF</th>
<th>University of Phoenix (Orlando)</th>
<th>Keiser University</th>
<th>Strayer University</th>
<th>Kaplan University</th>
<th>Everest University (Orlando)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Enrollment</strong></td>
<td>63,002</td>
<td>3,707</td>
<td>19,110</td>
<td>2,769</td>
<td>57,943</td>
<td>23,169</td>
</tr>
<tr>
<td><strong>Psychology; Registered Nursing</strong></td>
<td>Business Administration and Management; Criminal Justice and Law Enforcement Administration</td>
<td>Business Administration and Management; Criminal Justice and Law Enforcement Administration</td>
<td>Business Administration and Management; Criminal Justice and Law Enforcement Administration</td>
<td>Business and Commerce; Criminal Justice and Law Enforcement Administration</td>
<td>Registered Nursing; Business Administration and Management</td>
<td>Business Administration and Management; Securities Services Administration</td>
</tr>
<tr>
<td><strong>Social Work; Business and Commerce</strong></td>
<td>Business Administration and Management; Nursing Education</td>
<td>Business Administration and Management; Criminal Justice and Law Enforcement Administration</td>
<td>Business Administration and Management; Criminal Justice and Law Enforcement Administration</td>
<td>Business and Commerce; Criminal Justice and Law Enforcement Administration</td>
<td>Registered Nursing; Business Administration and Management</td>
<td>Business Administration and Management; Securities Services Administration</td>
</tr>
<tr>
<td><strong>Tuition and Fees</strong></td>
<td>$6,368</td>
<td>$10,540</td>
<td>$16,963</td>
<td>$12,975</td>
<td>$13,956</td>
<td>$13,752</td>
</tr>
</tbody>
</table>

Sources: UCF IKM, 2015; total Fall 2014 enrollment for Keiser and Strayer represent Florida numbers, and Phoenix and Everest represent Orlando region, according to Integrated Postsecondary Education Data System (IPEDS); Kaplan data based on its Davenport, IA headquarters, according to IPEDS; top programs defined by degrees conferred, 2014-15; full-time undergraduate tuition and fees, 2014-15, according to IPEDS.
## Comparison With For-Profit Institutions

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<th>Kaplan University</th>
<th>Everest University (Orlando)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent In-state</td>
<td>92%</td>
<td>90%</td>
<td>78%</td>
<td>98%</td>
<td>1%</td>
<td>17%</td>
</tr>
<tr>
<td>Percent Age 24 and under</td>
<td>79%</td>
<td>Not Available</td>
<td>35%</td>
<td>14%</td>
<td>18%</td>
<td>26%</td>
</tr>
<tr>
<td>Percent Minority</td>
<td>43%</td>
<td>52%</td>
<td>56%</td>
<td>44%</td>
<td>43%</td>
<td>59%</td>
</tr>
<tr>
<td>Retention Rate</td>
<td>89%</td>
<td>50%</td>
<td>74%</td>
<td>43%</td>
<td>40%</td>
<td>36%</td>
</tr>
<tr>
<td>Graduation Rate</td>
<td>70%</td>
<td>21%</td>
<td>56%</td>
<td>44%</td>
<td>16%</td>
<td>31%</td>
</tr>
</tbody>
</table>

Sources: UCF IKM, 2015; for non-UCF institutions, comparisons based upon Fall 2014 undergraduate admission data from IPEDS and data from U.S. Department of Education College Scorecard, 2016. For-profit institution data for Keiser and Strayer for Florida students; Kaplan data based on its Davenport, IA headquarters.
## Comparison With For-Profit Institutions

<table>
<thead>
<tr>
<th></th>
<th>UCF (Orlando)</th>
<th>Keiser University</th>
<th>Strayer University</th>
<th>Kaplan University</th>
<th>Everest University (Orlando)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Receiving Federal Loans</td>
<td>45%</td>
<td>65%</td>
<td>66%</td>
<td>78%</td>
<td>65%</td>
</tr>
<tr>
<td>Students Paying Down Debt</td>
<td>85%</td>
<td>41%</td>
<td>47%</td>
<td>44%</td>
<td>36%</td>
</tr>
<tr>
<td>Average Debt</td>
<td>$18,500</td>
<td>$35,500</td>
<td>$27,500</td>
<td>$39,500</td>
<td>$30,500</td>
</tr>
<tr>
<td>Salary After Graduation</td>
<td>$43,000</td>
<td>$53,400</td>
<td>$29,600</td>
<td>$51,700</td>
<td>$34,400</td>
</tr>
</tbody>
</table>

Source: U.S. Department of Education College Scorecard, 2016. For-profit institution data for Keiser and Strayer for Florida students; Kaplan data based on its Davenport, IA headquarters.
Ana G. Méndez University System

2,638 enrolled at Florida campuses in Orlando, Tampa, and Miramar

Offers bilingual accelerated program; registered as a discipline-based dual language immersion model

Follows the 50/50 model of bilingual instruction. 50% of instruction is offered in English and 50% in Spanish
Webster University

Currently enrolls about 350 students in Orlando

Combining its Orlando locations downtown, across from Amway Center

Offers graduate programs in business, human resources, health administration, counseling, and cybersecurity
Comparison With Private Institutions

<table>
<thead>
<tr>
<th>Total Enrollment</th>
<th>Rollins College</th>
<th>Stetson University</th>
<th>Full Sail University</th>
<th>Nova Southeastern University</th>
</tr>
</thead>
<tbody>
<tr>
<td>63,002</td>
<td>3,207</td>
<td>4,137</td>
<td>19,285</td>
<td>24,168</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Undergraduate</th>
<th>UCF</th>
<th>Rollins College</th>
<th>Stetson University</th>
<th>Full Sail University</th>
<th>Nova Southeastern University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology; Registered Nursing</td>
<td>International Business, Trade, and Commerce; Communication</td>
<td>Psychology; Business Administration and Management</td>
<td>Cinematography and Film and Video Production; Animation, Interactive Technology, Video Graphics, and Special Effects</td>
<td>Registered Nursing; Business Administration*</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Graduate</th>
<th>Business Administration and Management; Mental Health Counselor</th>
<th>Business Administration and Management; Educational Leadership</th>
<th>Arts, Entertainment, and Media Management; E-Commerce and Electronic Commerce</th>
<th>Business Administration and Management; Teacher Education (Multiple Levels)</th>
</tr>
</thead>
</table>

| Tuition and Fees | $6,368 | $43,080 | $40,040 | $22,796 | $26,700 |

* Based upon most degrees conferred in 2014-15 for degree programs offered in Orlando

Sources: UCF IKM, 2015; non-UCF enrollment based upon Fall 2014 numbers, according to IPEDS. Top programs defined by degrees conferred in 2014-15, according to IPEDS. Full-time undergraduate tuition and fees in 2014-15, according to IPEDS.
## Comparison With Private Institutions

<table>
<thead>
<tr>
<th></th>
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<th>Stetson University</th>
<th>Full Sail University</th>
<th>Nova Southeastern University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent In-state</td>
<td>92%</td>
<td>45%</td>
<td>64%</td>
<td>19%</td>
<td>64%</td>
</tr>
<tr>
<td>Percent Age 24 and under</td>
<td>79%</td>
<td>84%</td>
<td>96%</td>
<td>51%</td>
<td>56%</td>
</tr>
<tr>
<td>Percent Minority</td>
<td>43%</td>
<td>35%</td>
<td>34%</td>
<td>45%</td>
<td>65%</td>
</tr>
<tr>
<td>Retention Rate</td>
<td>89%</td>
<td>83%</td>
<td>78%</td>
<td>50%</td>
<td>71%</td>
</tr>
<tr>
<td>Graduation Rate</td>
<td>70%</td>
<td>69%</td>
<td>64%</td>
<td>79%</td>
<td>41%</td>
</tr>
</tbody>
</table>

Sources: UCF IKM, 2015; for non-UCF institutions, comparisons based upon Fall 2014 undergraduate admission data from IPEDS and data from U.S. Department of Education College Scorecard, 2016.
### Comparison With Private Institutions

<table>
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<tr>
<th></th>
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<th>Rollins College</th>
<th>Stetson University</th>
<th>Full Sail University</th>
<th>Nova Southeastern University</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students Receiving Federal Loans</strong></td>
<td>45%</td>
<td>52%</td>
<td>66%</td>
<td>80%</td>
<td>61%</td>
</tr>
<tr>
<td><strong>Students Paying Down Debt</strong></td>
<td>85%</td>
<td>83%</td>
<td>86%</td>
<td>57%</td>
<td>70%</td>
</tr>
<tr>
<td><strong>Average Debt</strong></td>
<td>$18,500</td>
<td>$27,000</td>
<td>$27,000</td>
<td>$30,843</td>
<td>$26,500</td>
</tr>
<tr>
<td><strong>Salary After Graduation</strong></td>
<td>$43,000</td>
<td>$42,200</td>
<td>$42,600</td>
<td>$34,100</td>
<td>$46,500</td>
</tr>
</tbody>
</table>

*Source: U.S. Department of Education College Scorecard, 2016*
Florida State Colleges
## 4-Year Degrees at DirectConnect Partners

<table>
<thead>
<tr>
<th>UCF</th>
<th>Valencia College</th>
<th>Eastern Florida State College</th>
<th>Lake-Sumter State College</th>
<th>Seminole State College</th>
<th>Daytona State College</th>
<th>College of Central Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Enrollment</td>
<td>63,002</td>
<td>34,818</td>
<td>12,736</td>
<td>3,510</td>
<td>16,567</td>
<td>12,993</td>
</tr>
<tr>
<td>Bachelor's Degrees</td>
<td>93</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Overlapping Degrees</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DirectConnect Students</td>
<td>6,337</td>
<td>3,828</td>
<td>764</td>
<td>228</td>
<td>1,027</td>
<td>387</td>
</tr>
</tbody>
</table>

* 2015-2016 Incoming students

Sources: UCF IKM, 2015; Integrated Postsecondary Education Data System, Fall 2014
Online Education
More than one in four students (28%) now take at least one distance education course (a total of 5.8 million, a year-to-year increase of 217,275).

Public institutions command the largest portion of distance education students, with 72.7% of all undergraduate and 38.7% of all graduate online learners.

Source: 2015 Online Report Card: Tracking Online Education in the United States
Public Universities Are Serving Their States

Locations of Students Enrolled Exclusively in Distance Education Courses

- Private for-profit
- Private not-for-profit
- Public

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Same state
Different state
International, U.S. unknown and Unknown

Source: 2015 Online Report Card: Tracking Online Education in the United States
### Online Education Comparison

<table>
<thead>
<tr>
<th>Source</th>
<th>UCF</th>
<th>Arizona State University</th>
<th>University of Florida</th>
<th>University of Miami</th>
<th>Florida International University</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Undergraduate Programs</strong></td>
<td>18</td>
<td>60</td>
<td>15</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td><strong>Graduate Programs</strong></td>
<td>25</td>
<td>45</td>
<td>34</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td><strong>Undergraduate Credit Hour Costs</strong></td>
<td>$179 in-state</td>
<td>$490 to $553 per credit hour*</td>
<td>$129 in-state</td>
<td>$675 per credit hour*</td>
<td>$216 in-state</td>
</tr>
<tr>
<td></td>
<td>$327 out-of-state</td>
<td>$552 per credit hour*</td>
<td>$552 out-of-state</td>
<td>$333 out-of-state</td>
<td></td>
</tr>
<tr>
<td><strong>Graduate Credit Hour Costs</strong></td>
<td>$327 to $1300 per credit hour*</td>
<td>$492 to $852 per credit hour*</td>
<td>$528 in-state</td>
<td>$1295 to $1850 per credit hour*</td>
<td>$500 in-state</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$1253 out-of-state</td>
<td>$1500 out-of-state</td>
<td></td>
</tr>
</tbody>
</table>

* No difference in tuition for out-of-state students

Sources: Educational institutions’ websites advertising online degree programs
Orlando Is An Asset

The **fastest-growing** of the country’s 30 largest regions - U.S. Census Bureau, 2016

Ranked **No. 4** among best U.S. cities for future job growth - *Forbes*, 2015

“**Best Cities for Innovation**” - *Fast Company*
Board of Trustees Retreat - Reports

UCFMBA.UCF.EDU

MBA to CEO

UCF MBA Executive | Professional | Degree

Make a wise choice for your future — the UCF MBA. Located in Orlando, Florida, the University of Central Florida’s MBA program offers an international education experience. The program is ranked among the top 100 programs in the world. The program is accredited by AACSB International, the highest accreditation for business programs. The program is offered online and on-campus, allowing students to choose the option that best fits their needs.

UCFMBA.EDU
Transfer to UCF, declare a major, raise a hand in class, turn a passion into a career plan, ace the final exam, walk across the stage, make the parents proud, polish the résumé, nail the interview, pick up the check, open a 401k, buy a new car, score the corner office, start a bucket list, sign a mortgage, dream bigger, take the leap and make it happen.

Choose the Rosen College of Hospitality Management, discover a passion for making people smile, partner with internationally-renowned faculty, score a life-changing internship, impress the world's travelers, collaborate with industry leaders, orchestrate a seven-course meal, pull off a party for a thousand, walk across the stage, send résumés to six continents, score the dream job, dive into a new culture and run your own show.