STEM at USF v1.0

RALPH C. WILCOX
Provost & Executive Vice President

PRESENTED TO:
Board of Trustees
December 8, 2011
What is STEM?

- **STEM** = Science, Technology, Engineering, and Mathematics.

Ordinarily STEM disciplines include five major subgroups:

- Computer Information Science
- Engineering and Engineering Technology
- Life Sciences
- Mathematics
- Physical Sciences
Why the Emphasis on STEM?

- Changing Economy Driven by Innovation
- Demand for a High-Skilled Workforce
- Regional, National, and Global Competitiveness
Meeting the STEM Challenge at USF

K-12 Education

Opportunity/Affordability

Undergraduate Education

Graduate Education

Research & Development

High Demand/High Skill/High Pay

Future Professoriate

College Preparedness

Quality Student Experience/Attainment

Economic Growth & Job Creation

Workforce Development
<table>
<thead>
<tr>
<th>STEM AREA</th>
<th>USF Tampa</th>
<th>USF St. Petersburg</th>
<th>USF Sarasota-Manatee</th>
<th>USF Polytechnic</th>
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<tbody>
<tr>
<td>Computer Information Science</td>
<td>Bachelors (5)</td>
<td>Bachelors (2)</td>
<td>Bachelors (1)</td>
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<td>Masters (2)</td>
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<td>Engineering and Engineering</td>
<td>Bachelors (4)</td>
<td>Bachelors (1)</td>
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<td>Technology</td>
<td>Masters (30)</td>
<td>Masters (1)</td>
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<td>PhD (8)</td>
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<td>Life Sciences</td>
<td>Bachelors (7)</td>
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<td>Masters (5)</td>
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USF System STEM Program Enrollment
by discipline, level, and campus (Fall 2011 Preliminary)

**USF Total STEM Enrollment** *

- Non-STEM: 72%
- STEM-Computer Information Sciences: 7%
- STEM-Engineering: 5%
- STEM-Life Sciences: 6%
- STEM-Mathematics: 8%
- STEM-Physical Sciences: 2%

**USF Sarasota-Manatee Total STEM Enrollment** *

- Non-STEM: 90%
- STEM-Computer Information Sciences: 9.7%
- STEM-Engineering: .1%
- STEM-Life Sciences: 3%
- STEM-Mathematics: 3%
- STEM-Physical Sciences: .2%

**USF Polytechnic Total STEM Enrollment** *

- Non-STEM: 72%
- STEM-Computer Information Sciences: 22%
- STEM-Engineering: 4.5%
- STEM-Life Sciences: 1%
- STEM-Mathematics: 1%

**USF St. Petersburg Total STEM Enrollment** *

- Non-STEM: 84%
- STEM-Computer Information Sciences: 3%
- STEM-Life Sciences: 6%
- STEM-Mathematics: 4%
- STEM-Physical Sciences: 4%

*Enrollment displayed are FTE per authorized program area
Source: USF InfoCenter; STEM programs used are defined by the FL Board of Governors
USF System STEM Degree Productivity
by discipline, level, and campus 2010 - 2011

USF Total STEM Degrees Awarded 2,164/9,551 (22%)

USF Sarasota-Manatee Total STEM Degrees Awarded 14/522 (2%)

USF Polytechnic Total STEM Degrees Awarded 18/350 (5%)

USF St. Petersburg Total STEM Degrees Awarded 59/849 (6%)

Source: USF InfoCenter; STEM programs used are defined by the FL Board of Governors
SUS RU/H & RU/VH Institutions

Baccalaureate STEM Degrees, 2009 - 10

% of Total Baccalaureate Degrees Awarded

Source: Board of Governors, SUS Annual Reports
SUS RU/H & RU/VH Institutions

Graduate STEM Degrees, 2009-10
% of Total Graduate Degrees Awarded*

%  
0% 5% 10% 15% 20% 25% 30% 35%

UF  32% (N=1,946)
UCF  25% (N=562)
USF System  21% (N=616)
FIU  18% (N=476)
FAU  15% (N=202)
FSU  12% (N=357)

USF System 2010-11: 21% (N = 623)

SUS 2010-11  USF System Share
21% 14%
(N=4,330)  (N = 623)

BOG 2025 Goal
35% 14%
(N=14,000)

* Graduate degrees include Masters, Specialist, and Research/Professional Doctorates
STEM Activities Across the USF System
## STEM at USF: Addressing the Challenges

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<th>Challenges</th>
<th>Potential Solutions</th>
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| K-12 Pipeline & Talent Supply Chain             | • STEM Summer Academy  
• Import Talent  
• Partnership with K-12 and FSC communities |
| Selection, participation, and attainment gap    | • Enhanced communication resources for STEM efforts  
• Expanding the STEM program array              |
| Mode of delivery                                | • Fostering greater collaboration with Business and Industry  
• Problem-based learning                        |
| Cost of delivery (space and faculty)            | • Focused public and private investment  
• Reducing tuition for STEM  
• Directing Bright Futures to STEM               |