College Update

♦ Progress Report and Strategic Plan Assessment
  – Education, Research & Resources
♦ Diversity Plan

Robert H. Davis, College of Engineering and Applied Science
Full Accreditation Awarded!

Honors Program:
• Fall 2006 start: 21 students
• Faculty Director: Scot Douglass
• Industry Night: 9/28/06

Engagement with DSST and Centaurus:
• I-CUE proposal funded
• Curricula, summer camps, internships
• Scholarships to attend CU
<table>
<thead>
<tr>
<th>Semester</th>
<th>S04</th>
<th>F04</th>
<th>S05</th>
<th>F05</th>
<th>S06</th>
<th>F06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earn-Learn</td>
<td>15</td>
<td>27</td>
<td>60</td>
<td>59</td>
<td>59</td>
<td>73</td>
</tr>
<tr>
<td>Disc. Learn.</td>
<td>12</td>
<td>12</td>
<td>22</td>
<td>23</td>
<td>23</td>
<td>35</td>
</tr>
</tbody>
</table>
1st Place Trophy – Fall 2005 Solar Decathlon

Jeff Lyng – American Solar Energy Society Outstanding Grad Student Award 2006

20th Place (out of 140) – 2006 Formula SAE Engineering Competition

Undergrads Pascal Getreuer, Brad Klingenberg, Brian Camley – 2006 Math Modeling Contest “Outstanding” Winner

Spencer Won – 2006 Design-Build Institute of America Student Leadership Award
## Education: Undergraduate Enrollments

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall 2003</th>
<th>Fall 2004</th>
<th>Fall 2005</th>
<th>Fall 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td># Ugrad Apps</td>
<td>2154</td>
<td>2212</td>
<td>2022</td>
<td>2107</td>
</tr>
<tr>
<td># Offered Adm</td>
<td>1890 (88%)</td>
<td>1956 (88%)</td>
<td>1781 (88%)</td>
<td>1805 (86%)</td>
</tr>
<tr>
<td># Enrolled</td>
<td>610 (32%)</td>
<td>633 (32%)</td>
<td>669 (38%)</td>
<td>654 (36%)</td>
</tr>
<tr>
<td># Enrolled as Fr.</td>
<td>560 (92%)</td>
<td>585 (92%)</td>
<td>599 (90%)</td>
<td>570 (87%)</td>
</tr>
<tr>
<td># New Women Fr.</td>
<td>79 (14%)</td>
<td>101 (17%)</td>
<td>108 (18%)</td>
<td>104 (18%)</td>
</tr>
<tr>
<td># New Minority Fr.</td>
<td>32 (5.7%)</td>
<td>42 (7.2%)</td>
<td>54 (9.0%)</td>
<td>43 (7.5%)</td>
</tr>
<tr>
<td>Avg. H.S. GPA</td>
<td>3.69</td>
<td>3.72</td>
<td>3.71</td>
<td>3.75</td>
</tr>
<tr>
<td>Avg. SAT Math</td>
<td>670</td>
<td>660</td>
<td>650</td>
<td>660</td>
</tr>
<tr>
<td>Total Ugrads</td>
<td>2667</td>
<td>2736</td>
<td>2739</td>
<td>2755</td>
</tr>
<tr>
<td>% Women</td>
<td>17.5%</td>
<td>17.2%</td>
<td>16.9%</td>
<td>17.7%</td>
</tr>
<tr>
<td>% Minorities</td>
<td>7.5%</td>
<td>7.1%</td>
<td>7.4%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>

**Goals:** Increased quality & diversity
<table>
<thead>
<tr>
<th>Year</th>
<th>Fall 2003</th>
<th>Fall 2004</th>
<th>Fall 2005</th>
<th>Fall 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td># Grad Apps</td>
<td>2087</td>
<td>1666</td>
<td>1358</td>
<td>1477</td>
</tr>
<tr>
<td># Offered Adm</td>
<td>1149 (55%)</td>
<td>932 (56%)</td>
<td>840 (62%)</td>
<td>902 (61%)</td>
</tr>
<tr>
<td># Enrolled</td>
<td>289 (25%)</td>
<td>244 (26%)</td>
<td>265 (32%)</td>
<td>299 (33%)</td>
</tr>
<tr>
<td>Avg. Quant. GRE</td>
<td>753</td>
<td>757</td>
<td>744</td>
<td>756</td>
</tr>
<tr>
<td>Total MS Students</td>
<td>461</td>
<td>461</td>
<td>399</td>
<td>388</td>
</tr>
<tr>
<td>Total PhD Students</td>
<td>485</td>
<td>500</td>
<td>491</td>
<td>488</td>
</tr>
<tr>
<td>% Women</td>
<td>24%</td>
<td>22%</td>
<td>23%</td>
<td>24%</td>
</tr>
<tr>
<td>% Minority</td>
<td>5.0%</td>
<td>5.6%</td>
<td>4.4%</td>
<td>5.4%</td>
</tr>
<tr>
<td>% Foreign</td>
<td>36%</td>
<td>31%</td>
<td>27%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Data do not include professional studies students

Goals: Increased size of PhD program, quality & diversity
Education: U.S. News Rankings

Undergraduate Program Rankings:
8/03 – 29 (17 among publics)
8/04 – 33 (18 among publics)
8/05 – 36 (21 among publics)
8/06 – 34 (19 among publics)
   Aero – 18 (13), Civ – 19 (12)

Graduate Program Rankings:
4/03 – 37 (21 among publics)
4/04 – 33 (19 among publics)
4/05 – 33 (19 among publics)
4/06 – 39 (22 among publics)
   Aero – 13 (8), ChE – 18 (11), Civ – 24 (16)
   CS – 34 (18), EE – 33 (20), ME – 42 (26)
## Education: Special Programs

<table>
<thead>
<tr>
<th>Year</th>
<th>FY04</th>
<th>FY05</th>
<th>FY06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Learning</td>
<td>492</td>
<td>636</td>
<td>617</td>
</tr>
<tr>
<td>Professional Learning</td>
<td>137</td>
<td>357</td>
<td>325</td>
</tr>
<tr>
<td>Service Learning</td>
<td>265</td>
<td>488</td>
<td>337</td>
</tr>
<tr>
<td>Total Participating</td>
<td>618</td>
<td>1014</td>
<td>855</td>
</tr>
<tr>
<td>Total Undergraduates</td>
<td>2667</td>
<td>2736</td>
<td>2739</td>
</tr>
<tr>
<td>% Participation</td>
<td>23%</td>
<td>37%</td>
<td>31%</td>
</tr>
</tbody>
</table>

- Earn-Learn Program: Spg 2004
- Discovery Learning Program: Spg 2004
- Engineering Honors Program: Fall 2006

Goal: 33% participation per year
Discovery Learning Task Force:
• Call for participation aligned with initiatives
• More faculty & student offices
• Expand initiative throughout College
• Faculty director

Tech Transfer: Feedback on standard terms

Federal Advocacy: Visits to agencies

Corporate Research Relations
• Integrated Micro/Nano-Electromechanical Transducers
• Colorado Center for Biorefining & Biofuels
### Research: Grant Funding

<table>
<thead>
<tr>
<th>Year</th>
<th>FY02</th>
<th>FY03</th>
<th>FY04</th>
<th>FY05</th>
<th>FY06</th>
</tr>
</thead>
<tbody>
<tr>
<td># proposals</td>
<td>528</td>
<td>554</td>
<td>577</td>
<td>553</td>
<td>478</td>
</tr>
<tr>
<td>$ requested</td>
<td>235M</td>
<td>274M</td>
<td>274M</td>
<td>255M</td>
<td>137M</td>
</tr>
<tr>
<td>$ awarded</td>
<td>38.7M</td>
<td>37.5M</td>
<td>42.8M</td>
<td>39.1M</td>
<td>34.8M</td>
</tr>
<tr>
<td>$ from industry</td>
<td>3.5 M</td>
<td>4.2 M</td>
<td>4.7 M</td>
<td>6.4 M</td>
<td>6.8 M</td>
</tr>
</tbody>
</table>

**Goals:** New partnerships, increased submissions & awards
## Research: Fac. Productivity

<table>
<thead>
<tr>
<th>Year</th>
<th>C/FY02</th>
<th>C/FY03</th>
<th>C/FY04</th>
<th>C/FY05</th>
<th>C/FY06</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ requested</td>
<td>235M</td>
<td>274M</td>
<td>274M</td>
<td>255M</td>
<td>137M</td>
</tr>
<tr>
<td># PhDs granted</td>
<td>61</td>
<td>71</td>
<td>74</td>
<td>69</td>
<td>76</td>
</tr>
<tr>
<td># rev. pubs/fac</td>
<td>N/A</td>
<td>4.4</td>
<td>4.3</td>
<td>5.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Fac. exp. &gt; $150K</td>
<td>29%</td>
<td>33%</td>
<td>38%</td>
<td>33%</td>
<td>--</td>
</tr>
<tr>
<td>Fac. exp. &gt; $50K</td>
<td>51%</td>
<td>51%</td>
<td>59%</td>
<td>55%</td>
<td>--</td>
</tr>
</tbody>
</table>

Goals: Increased PhD degrees & faculty involvement in research
Research: Centers & Initiatives

♦ 3 new college centers:

♦ 3 campus initiatives:

Goals: 6 centers & 3 initiatives
• New gifts & pledges in FY06: $6.4M (+55%)
• Annual giving to Dean’s Fund in FY06: 361K (+22%)
  – Market Earn-Learn in FY07 appeal
  – Class of 1957 visit requests
• Campus budget outlook:
  – State support up ≈ 15%
  – Tuition increase ≈ 2.5% (ugrad)
  – Resident tuition for all grad appointments
  – Freshmen class ≈ 5600 vs. 5100
  – Total enrollment up ≈ 1% to 28,942
Resources: Financial

♦ Continuing general-fund budget
  FY03: 24.5 → 23.2M   FY04: 24.5M   FY05: 25.9M   FY06: 27.4M

♦ New continuing general funds
  Differential tuition: 490K  Non-resident tuition return: 490K
  Course-specific fees: 460K  Additional NR tuition: 150K
  Faculty growth lines: 360K  Standard factor increases: 2065K
  Operating funds: 225K

♦ Private gifts (cash received)
  FY03: $3.9M   FY04: $3.7M   FY05: $4.7M   FY06: $5.7M

Goals: $30M continuing general funds by FY08, $6M/yr private fundraising between campaigns
FY06 college expenditure total: $69.6M

FY06 source breakdown of general funds:
- Tuition & Fees: 20.4M (29.3%)
- State: 3.8M (5.5%)
- ICR: 2.8M (4.0%)
- Grants: 35.6M (51.2%)
- Gifts: 4.3M (6.2%)
- Gen. & Ren.: 27.0M (38.8%)
- Aux. Funds: 2.6M (3.8%)
Resources: Faculty

♦ F04-F06 Starts: 20 new faculty including 10 women
♦ FY04-FY06 Retention Offers: 6 left, 6 stayed
♦ 10 Chairs & 11 Professorships (12 new since 2003)
♦ Faculty raises:

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Raise</td>
<td>2.6%</td>
<td>2.8%</td>
<td>3.3%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Inflation</td>
<td>1.1%</td>
<td>0.1%</td>
<td>2.1%</td>
<td>--</td>
</tr>
</tbody>
</table>

♦ AY05-06 salaries average 2.8% above, 2.7% below, and 3.9% below AAU engineering averages at the assistant, associate, and full professor levels, respectively

Goals: Increased diversity, > 50% retention, 14 new endowed chairs & professorships, raises 1.5% above inflation
Assistant Professor:

Katie Siek, Computer Science

Endowed Chairs and Professorships:

Brian Argrow, Look Professor
Bob Erickson, Slade Professor
Stein Sture, Croft Professor
Kelvin Wagner, Negler Chair
Al Weimer, Sears Professor
Resources: Faculty Honors

Frank Barnes, ECE
ITERA Distinguished Telecommunications Research Award

Roseanna Neupauer, CEAE
ASCE Huber Prize & New Faculty Teaching Award

Zoya Popovic & Regan Zane, ECE
IEEE Microwave Prize

Joseph Ryan, CEAE
U.S. EPA Notable Achievement Award

Alan Weimer, ChBE
U.S. Dept. of Energy Hydrogen Program R&D
Resources: Facilities

♦ Improved Use of Current Building
  – $4 million for 60 renovation projects in 3 years
  – 3 tenants moved to other buildings
  – Nanotech & computing facilities

♦ Expansion of Current Building
  – Feasibility studies for wing expansions

♦ Biotechnology Building on Research Campus
  – Program Plan approved by CU Regents

Goals: $500K/yr renovations, 2 college research facilities, 60K new sq. ft.
Diversity Plan

We seek to . . .

- Attract diverse & talented students, faculty & staff
- Provide a supportive climate for all to excel
- Engage all faculty & staff in promoting diversity and excellence

engineering.colorado.edu/downloads/DiversityPlan2006.pdf
Investment in CU-Engineering (I-CUE)

- A refreshment of our strategic plan for excellence in education, research and resources

Motivation

1. Need to reverse decline in U.S. News rankings
   - CU-Engineering Grad: 33 (19) \( \rightarrow \) 39 (22)
   - CU-Engineering Ugrad: 33 (18) \( \rightarrow \) 36 (21)
   - CU-Boulder Ugrad: 74 (32) \( \rightarrow \) 78 (34)

2. Need to prepare for campus budget process
   - First state budget increase in five years
   - Strategic plans & budget requests

3. Need to energize faculty, staff, students & volunteers
• **Strategic (re)allocation of college resources**
  - 10 proposals received in May 2006
  - Mini-retreat held in June 2006
  - 4 modified proposals selected in August 2006

• **Strategic requests for campus resources**
  - Proposals submitted September 2006
  - Decisions expected December 2006

• **Strategic private fundraising**
Cultivating Diverse, Pre-Engineering Students

CU Leads: ITLL, MEP, WIEP
Partners: Denver School of Science & Technology
         Lafayette Pre-Engineering Academy
Goal: Attraction of talented & diverse students to CU Engineering
2-yr I-CUE Award: $248K   Campus Request: $200K/yr

- Undergraduate scholarships
- Earn-learn apprenticeships
- Graduate assistantships
- Instructor salaries
- Programmatic support
Promoting Energy Independence

CU Leads: ChBE, ECE
Partners: Renewable & Sustainable Energy Initiative
Energy companies & regional institutions
Goal: Research & educational programs for improved energy resources & efficiency
2-yr I-CUE Award: $365K  Campus Request: $236K/yr + $658K
  • 3 new faculty & startup
  • Grad assistantships & fellowships
  • Discovery learning apprenticeships
  • Programmatic support
CU Leads: MechE, ChBE
Partner: College of Arts & Sciences
Goal: Formal MSE program, including PhD degree

2-yr I-CUE Award: $460K  Campus Request: $229K/yr + $557K
• 2 new faculty & startup
• Grad assistantships & fellowships
• Discovery learning apprenticeships
• Engineering materials lab
• Programmatic support
CU Leads: AES, CSGC
Partner: Laboratory for Atmospheric & Space Physics
Goal: Hands-on graduate education & research program in integrated space systems
2-yr I-CUE Award: $419K  Campus Request: $192K/yr + $223K
- 2 new faculty & startup
- Grad assistantships & fellowships
- Discovery learning apprenticeships
- Earn-learn apprenticeships
- Program Plan for AES expansion
- Space env. sim. apparatus
- Programmatic support
The I-CUE Challenge:
Leverage college & campus resources

Focus on Support of People:
- Undergraduate scholarships & apprenticeships
- Graduate fellowships
- Faculty fellowships

If your vision is for one year, plant wheat.
If your vision is for ten years, plant trees.
If your vision is for a lifetime, plant people.

-Old Chinese Proverb