Georgia Tech Administrative Retreat

President G. Wayne Clough

Callaway Gardens
August 28, 2005
Year in Review

National leader in graduating African American engineers.

Going global: Programs and partnerships expand.

Campus Rec Center and Technology Square win awards.

Nanomedicine research takes off.
Incoming freshman class

- 4.5% increase in apps
- 73% applied online
- Average SAT of 1340
- IAC up 50%
- 2,465 deposits:
  - 61% in state
  - 3% international
  - 29% women
  - 6.5% African American
  - 4.5% Hispanic
Trend line for applications

Georgia Institute of Technology
Freshman Applications
Fall 1990-Fall 2005

(1) (2)
(Essay)
Students honored

Goldwater Scholar Ambika Bumb wins a Marshall Scholarship to pursue a Ph.D. at Oxford.

Jeremy Farris heads for Oxford as Tech’s 2nd Rhodes Scholar in 3 years.

Goldwater Scholar John Parrish continues undergrad studies at Tech.

Gates Scholar Anthony Hylick will pursue a Ph.D. at Cambridge.
Strong rankings hold

- No. 9 among public universities (+1)
- No. 37 among all universities (+4)
- 5 engineering programs rank among the top 5 of their specialty.
- Co-op program featured among “Academic Programs to Look For.”
Faculty achievements recognized

PECASE Awards
- Ali Adibi, ECE
- William King, ME
- David Anderson, ECE

Sloan Research Fellows
- Alex Kuzmich, physics
- Todd Streelman, bio
- Marcus Weck, chem & biochem
New chairs

Mei-Yin Chou, Physics

Gary May, ECE

Chip White, ISyE

Sam Nunn: Benjamin Franklin Award

Atlanta Woman Magazine
Top 10 Inventors

Barbara Boyan, BME
Beth Mynatt, computing
Research

Flameless combustion

Analyzing the formation of cardiovascular plaque at the molecular level.

Aug 17 ribbon-cutting for Samsung RFIC Design Center at the Technology Square Research Building.
Athletes excel

- Women’s tennis team 2005 ACC champs; in NCAA Sweet 16 for first time ever.
- Baseball team captured ACC title, hosted NCAA regional.
- Chaunte Howard won 3rd straight indoor NCAA high jump title; sets new Tech record.
- Golf team finished #2 nationally; 4th top-5 finish in 5 years. Named No. 1 program in nation by *Golf Digest*. 
Athletes also excel academically

- Recipients of ACC postgraduate scholarships:
  - Volleyball All American Jayme Gergen
  - Football standout Nate Curry
  - ACC track champion Zeb Sion
  - Honorable mention: All American golfer Nicholas Thompson

- Six Tech teams earned perfect scores in the new NCAA Academic Progress Rate Report.
Strong fundraising between campaigns
Looking ahead…

… to the coming year and beyond.
Extending our international reach

- Expanding partnerships in China
- Undergrad semester abroad in Singapore
- International degree designation allows students to integrate an international focus into their program of study.
- GTRI preparing final proposal for applied research program in Ireland.
Expanding academic programs

- Interdisciplinary degrees:
  - International economics and modern language
  - International affairs and modern language
  - Digital media
- Research degree designation for undergrads
Emerging new research thrusts

Energy

Preventive medicine

Health systems
New facilities coming online

Swann Building

Klaus Advanced Computing Building

Molecular Science & Engineering Building
Campus gateway takes shape

Fifth Street
Nanotechnology Research Center

- 188,000 gross sq ft facility.
- 30,000 sq ft of cleanroom space.
- Nation’s first cleanroom facility to be deliberately designed to serve nanomedicine, biotechnology.
- Three “cleanest” classes of labs (10, 100, 1000).
- Flexible configuration will meet differing research needs.
Coming soon…

Undergraduate Learning Center:
Integrated classrooms, labs, team meeting space for introductory science courses; Information Commons; hub for academic support and educational innovation.

Bio Z Building: 250,000 gsf facility for interdisciplinary research and education in:
- Fundamentals of biological systems
- Measurements and devices
- Complexity of biological processes
- Large-scale phenomena
Technology Enterprise Park
### Billion-dollar campaigns now under way

<table>
<thead>
<tr>
<th>University</th>
<th>Campaign Amount</th>
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<tbody>
<tr>
<td>Univ of Virginia</td>
<td>$3.0 billion</td>
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<tr>
<td>Univ Michigan</td>
<td>$2.5 billion</td>
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<tr>
<td>Illinois</td>
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<tr>
<td>NYU</td>
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<tr>
<td>UCLA</td>
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<td>Wisconsin</td>
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<tr>
<td>Cal Tech</td>
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<tr>
<td>UC San Fran</td>
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<tr>
<td>Vanderbilt</td>
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<tr>
<td>Michigan State</td>
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<tr>
<td>RPI</td>
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<tr>
<td>Stanford</td>
<td>$1.0 billion</td>
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<tr>
<td>Texas A&amp;M</td>
<td>$1.0 billion</td>
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<tr>
<td>Univ Arizona</td>
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<tr>
<td>UC San Diego</td>
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<tr>
<td>Univ Iowa</td>
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<tr>
<td>Univ Miami</td>
<td>$1.0 billion</td>
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<tr>
<td>Pittsburgh</td>
<td>$1.0 billion</td>
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*In Georgia Tech’s peer set*
Preparing for Campaign 2010

- Goal: $1 billion
- Quiet phase now underway.
- Planning and decision making on campaign components in process.
- Initial start-up going well.
State/Board of Regents

- Election-year considerations
- “Big bang” idea
- Budget situation improved
- Commission for a New Georgia recommendations
- New Chancellor
Tech’s economic impact

- Huron study commissioned
- 12 major corporate sponsors
- Looking 10 years back, then looking forward
- Identifying constraints that hamper Tech’s efforts
- Making recommendations
Yes, you work here…

… but how much do you really know about Georgia Tech?
Pop quiz

1. Of the 16 states in the southeast, where does Georgia rank in terms of in-state tuition? 16th

2. Which southern state is projected to be among the five fastest growing states in college-bound population? Georgia

3. How many states have two universities ranked among the nation’s top 20 public universities? CA, VA, GA, PA

4. What did the state appropriate to build major capital facilities for the University System over the past 3 years? A) $400 m B) $300 m C) $200 m D) Less than $200 m
Pop quiz, continued

5. Which two of the 34 institutions in the University System of Georgia experienced the largest numerical growth during the past 5 years? Georgia Tech, Kennesaw

6. How much of Georgia Tech’s budget comes from the state? A) 75% B) 50% C) 25% D) None of these

7. How much of Georgia Tech’s capital construction is funded by the state of Georgia? A) 75% B) 50% C) 25% D) Less than 20%

8. How many Georgia universities have federal research expenditures in the nation’s top 30? One: Emory
<table>
<thead>
<tr>
<th>Rank</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Johns Hopkins</td>
<td>8</td>
<td>Wisconsin</td>
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<tr>
<td>2</td>
<td>Washington</td>
<td>9</td>
<td>Columbia</td>
</tr>
<tr>
<td>3</td>
<td>Michigan</td>
<td>10</td>
<td>U Colorado</td>
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<td>4</td>
<td>Stanford</td>
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<td>MIT</td>
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<td>5</td>
<td>UCLA</td>
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<td>6</td>
<td>U Penn</td>
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<tr>
<td>7</td>
<td>UC San Diego</td>
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</table>
Top 10 universities in federal research

1. Johns Hopkins
2. Washington
3. Michigan
4. Stanford
5. Emory + Ga Tech
6. UCLA
7. U Penn
8. UC San Diego
9. Wisconsin
10. Columbia
9. Name Georgia’s top 3 patent producers last year.
   GE Energy, BellSouth, Georgia Tech

10. How many campuses does Georgia Tech have?
    Four

11. How many acres comprise Tech’s Atlanta campus?
    A) 335    B) 380    C) 420    D) 480

12. What are the highest ranked science programs in the state?
    #32 in chemistry, #32 in physics – Georgia Tech

13. How many Nobel Prize winners are on the faculties of Georgia’s research universities?
    Zero
14. About how many faculty does Georgia Tech have?  
A) 800  B) 850  C) 900  D) 950

15. How many of them were hired within the past 10 years?  
A) 10%  B) 28%  C) 42%  D) 54%

16. How many Tech faculty are members of the National Academy of Engineering?  
A) 14  B) 25  C) 37  D) 53

17. How many Tech faculty are members of the National Academy of Sciences?  
A) 2  B) 5  C) 8  D) 12
18. Where does Georgia Tech rank nationally in the number of NSF CAREER Award winners?
   A) No. 1  B) No. 2  C) No. 4  D) No. 8  [B) No. 2]

19. What is Tech’s retention rate for first-year students?
   A) 85%  B) 89%  C) 92%  D) 94%  [C) 92%]

20. How many of our students graduate within 6 years?
   A) 60%  B) 69%  C) 72%  D) 76%  [D) 76%]

21. What is the total value of Georgia Tech’s endowments?
   A) $900 m  B) $1.16 b  C) $1.20 b  D) $1.47 b  [B) $1.16 b]
22. How do we rank compared to other public universities in per student endowment value?  
   A) No. 5  
   B) No. 9  
   C) No. 14  
   D) No. 19

BONUS: In which two sports does Georgia Tech hold current national championships?  
   men’s lightweight four crew  
   sky diving
Georgia Tech
Through the lens of the Association of American Universities
What is the AAU?

- 62 member universities:
  - 34 public; 26 private, 2 Canadian
  - 37 (62%) have medical schools
  - 43 (72%) have a total to moderate life science focus
  - 3 (5%) have a strong to moderate engineering focus

- Membership by invitation based on:
  - Performance according to Membership Indicators
  - Institution’s mission, characteristics, trajectory
  - Three-fourths vote of member universities
Membership Indicators

Federal research expenditures
(FY 2003)

- 41 of the top 50 universities are AAU members.
- 9 non-members in order:
  12 UC San Francisco
  18 Baylor College of Medicine
  26 Univ of Ala Birmingham
  35 Boston University
  36 Georgia Tech
  42 Univ of Cincinnati
  44 UTexas SW Medical Ctr
  47 Univ of Illinois, Chicago
  49 Ore Health & Sci Univ
44 of the top 50 universities are AAU members.

6 non-members in order:

10 UC San Francisco
22 Rockefeller Univ
34 Georgia Tech
35 UTexas SW Medical Ctr
38 Scripps Research Inst
43 Univ of Utah
Faculty awards, memberships

- 27 awards, fellowships, memberships considered; heavily skewed to arts and humanities.
- Georgia Tech generally does not either win or track these awards.
- To our knowledge, GT faculty have only ever won:
  - Humboldt Fellowship
  - McArthur Award
  - Fulbright Award
  - Guggenheim Memorial Fellowship
  - NEH Fellowship
  - Sloan Fellowship
**Membership Indicators**

**Journal citations**

<table>
<thead>
<tr>
<th>Institution*</th>
<th>1998-2002</th>
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<tbody>
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<td>UC Berkeley</td>
<td>172,719</td>
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<tr>
<td>MIT</td>
<td>147,665</td>
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<td>Cal Tech</td>
<td>111,997</td>
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<td>Case Western Reserve</td>
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<td>Maryland</td>
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<td>Texas A&amp;M</td>
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<td>Purdue</td>
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<tr>
<td>Carnegie Mellon</td>
<td>29,423</td>
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<tr>
<td><strong>Georgia Tech</strong></td>
<td><strong>21,079</strong></td>
</tr>
</tbody>
</table>

* AAU members with a similar profile to Georgia Tech.
Of 24 disciplinary categories:

- GT is in the 75-90 percentile in engineering, computer science, materials science, and mathematics.
- GT is in the 25-75 percentile in chemistry, ecology/environment, geosciences, education, physics, and multi-disciplinary.
- In the remaining 14 categories, GT is in the bottom quartile.
Ph.D. degrees awarded

- Georgia Tech ranks 62nd nationally.
- 46 of the 62 AAU universities award more Ph.D. degrees than Georgia Tech.
- 15 other non-AAU institutions award more Ph.D. degrees than Georgia Tech.
Institute characteristics

Postdoctoral appointments

- Georgia Tech only recently began consistently tracking and reporting our post-docs, and we have historically been assigned zeroes when we were actually not reporting data.
- We also have several years of under-reporting.
- For fall of 2003, our actual number of post-docs would have placed us 100th in the nation.
Undergraduate education

- 42 of 51 institutions on *US News*’ recent list of the top 50 universities are AAU members.
- 9 non-members include:
  - 9 Dartmouth College
  - 18 Notre Dame
  - 23 Georgetown Univ
  - 27 Tufts Univ
  - 27 Wake Forest
  - 31 William & Mary
  - 32 Lehigh Univ
  - 37 Georgia Tech
  - 45 Yeshiva Univ
“Are your instructors good teachers?”
Georgia Tech ranked 358 out of 361 institutions, ahead of Cal Tech, Stevens, New Jersey.

“How much of your overall class time is devoted to discussion as opposed to lectures?”
Georgia Tech ranked 361 out of 361 institutions.
Our young alumni respond
(2004 Survey of ’98-’01 graduates)

- **Quality of instruction from faculty:**
  - 92% satisfied, very satisfied or extremely satisfied relative to faculty in their major.
  - 90% satisfied, very satisfied or extremely satisfied relative to faculty in their college.

- **Overall satisfaction:**
  - 92% felt prepared to practice professionally.
  - 91% felt prepared to contribute to their discipline.
  - 88% felt prepared to contribute to society.
But we still have room to improve

- 65% were satisfied with academic advisement.
- 47% were satisfied with career planning help.
- 47% were satisfied with internship experience.
- 75% felt they understood the impact of their profession on society.
- 70% felt they could practice their discipline in other cultural settings.
- 58% felt they understood the environmental impact of their discipline.
- 53% felt they had business and finance knowledge they could apply.
So, what does it mean to be the institution that defines the technological research university of the 21\textsuperscript{st} century?