Pratt Facts 2013

Duke Engineering by the Numbers
People
The Pratt Community
Fiscal Year 2013

125 faculty (100 tenure-track)*
91 post-docs
431 PhD students
436 masters students
1,227 undergraduates
220 staff

The Pratt community comprises more than 2,500 people.
*Including Computer Science, Duke Engineering has 119 tenure-track faculty.
Pratt’s regular-rank faculty has grown by more than 20 percent over the past decade. *Does not include Computer Science faculty.
Faculty by Department (FY13)
The Pratt team includes 220 staff and 91 post-docs.
Students by Department (FY13)
Demographics: Undergraduates

Pratt, 2012-13

All US engineering schools, 2011-12
Demographics: Grad Students (2012-13)

Nationally, 43% of master's and 53% of PhD degrees awarded are to non-US citizens (at Duke: 49% for MS, 69% for MEMP, 52% for MEng and 41% for PhD).

Of US citizens, whites nationally comprise ~61 percent of graduate students; Asian-Americans ~13.5 percent. URMss make up 14% of masters and 10.5% of doctoral students.
Nationally, URMs comprise 6.6% of engineering faculty (compared to 7% for Duke), Asian-Americans 25% (compared to 17% for Duke).
Pratt has a significantly higher percentage of women in both its student body and regular-rank faculty than average U.S. engineering school.
Pratt Culture Survey

“I would encourage a colleague/friend to apply to Pratt for employment/admission”

On this key measure of satisfaction, respondents were asked to rate their agreement on a 1 to 5 scale with 1 being “Strongly Agree,” 2 “Agree,” 3 “Neutral,” 4 “Disagree,” 5 “Strongly Disagree.”

While most responding groups had improved scores in 2013, none of the improvements was statistically significant.
BSE Graduate Trends: Pratt
(May graduates, including 2nd majors)

Double majors are counted once in each department.
For graduates who expect to be working for pay, “Which best describes the current state of your employment plans? Exclude search for summer-only employment.”

Of Pratt seniors planning to work for pay, 85% of BME, 80% of CEE, 96% ECE, and 90% of ME students had jobs at the time of graduation.
Growth in Graduate Student Enrollment

Total graduate enrollment has increased from 594 to 867 since 2008.
PhD Students Per Faculty

Pratt’s goal is to reach 5 PhD students per tenure-track faculty member.

Data as reported to USNews (except FY13). Includes Computer Science.
Pratt’s long-term goal is to graduate 100 PhDs/year, including Computer Science. (Figures above are for Pratt only.)
A record 17 Pratt students won NSF research fellowships for 2013-2014.

*MEMS: Two NDSEG, one ONR and one NASA fellowship, CEE: one NDSEG. Data not available for previous years.
Teaching Evaluation Trends

Rating of overall course quality, including content, structure, approach and educational value. 1=Poor, 5=Excellent

Students consistently rank Pratt courses in the “very good” range.
Teaching Evaluation Trends

Rating of overall instructor quality, including presentation, organization, knowledge, accessibility, responsiveness and enthusiasm. 1=Poor, 5=Excellent

Students consistently rank Pratt instructors in the “very good” to “excellent” range.
PhD Career Placement: Pratt

Data reflects current positions for PhD alumni who graduated 9/02-5/12.
Research & Productivity
Growth in Annual Research Expenditures

Pratt’s external research funding has more than tripled in the past decade.

*Does not include Computer Science or joint faculty with primary appointments outside Pratt
Then & Now: Pratt Research Sponsors

**FY2009**
- NIH: 33%
- DoD: 17%
- NSF: 18%
- Other Fed: 4%
- State: 6%
- Non-Govt: 21%
- DoE: 1%

**FY2012**
- NIH: 25%
- DoD: 40%
- NSF: 14%
- Other Fed: 5%
- State: 3%
- Non-Govt: 12%
- DoE: 1%

Total: $40.023M
Total: $55.898M
New awards to Pratt have risen by 55% over the past five years.

*Awards=amount of new research funding won each year. For multi-year grants, the total amount pledged is counted in the year the award is made.*
ECE has experienced significant growth in funding driven by awards from DARPA and DHS.
Pratt now contributes 38 percent of all Duke external research funding, up from 26 percent in FY2011. (New awards; does not include medical school.)
Major Externally Funded Research Centers*

In 2007 Pratt had NO centers—a key marker of top engineering programs. Today it has SIX. *Duke-led centers with >$1M in external funding/year for 3+ years.
Major Externally Funded Research Centers

**CEINT: Center for Environmental Implications of Nanotechnology**
- NSF/EPA CEINT, 2008-2018

**CMIP: Center for Metamaterials and Integrated Plasmonics**
- 1) MURI, Transformation Optical Metamaterials, Army Research Office, 2009-2014
- 2) MURI, Expanding the Limits of Acoustic Metamaterials, Office of Naval Research, 2013-2018

**MUSIQC: Modular Universal Scalable Ion-trap Quantum Computer (MUSIQC) Program**
- IARPA, Army Research Office, 2010-2015

**Triangle MRSEC: Materials Research Science & Engineering Center**
- NSF MRSEC, 2012-2018

**Center for Materials Genomics**
Training Grants

**NIH Training Grant in Biomolecular and Tissue Engineering**
- Project Period: 7/1/1994 – 6/30/2017
- 8 Students Supported
- 2 Matching Slots from Pratt Grad Program

**NIH Medical Imaging Training Program**
- Project Period: 7/15/2003 – 6/30/2014
- 6 Students Supported
- 1 Matching Slot from Pratt Grad Program

**NSF IGERT* Training Program in Wireless Intelligent Sensor Networks (WISeNet)**
- 8 Students Supported
- 1 Matching Slot from Pratt Grad Program

**NSF PIRE** Program in Water and Commerce: Technologies to enable environmental sustainability in global markets
- Project Period: 1/1/2013-12/31/2017
- 5.3 Students Supported (3.3 at Pratt)

*IGERT = Integrative Graduate Education and Research Traineeship
**PIRE = Partnerships for International Research and Education
Current Pratt faculty elected to the NAE are Earl Dowell (elected 1993), Henry Petroski (1997), Robert Calderbank (2005) and Kam Leong (2013).
Rankings
Overall, Duke University ranks #7 among 1,600 U.S. colleges.
Note: Only Biomedical, Environmental, and Electrical Engineering were ranked in 2014.
Graduate Specialty Rankings

U.S. News & World Report

- BME
- Mechanical
- Civil
- Environmental
- Electrical
- Computer
Financials
Total revenues have risen steadily, despite recent declines in endowment/investment income.
Expenses have risen as the school has grown.
Annual fund gifts have increased by 28 percent over the past five years—with 40 percent of Pratt alumni now participating. A record 6,631 donors gave in FY2013.
Endowed Positions at Pratt

38 percent of Pratt’s tenure-track professors now hold endowed professorships.
*(Includes 8 professorships created in 2012 by the Vinik Challenge)
Value of the Pratt Endowment

($Millions)

1999: $28
2006: $122
2013: $250
Additional Metrics
Pratt’s growing footprint has supported the expansive growth of the faculty and student body.

**Space**

- Duke Engineering space has doubled to **254K NSF** in the past 10 years
- Summer 2013: ~**30,000 GSF** opened in Gross Hall for “Big Data” team, faculty lab space
- Proposed new building would add **65,000 NSF** for engineering education & research
Pratt Industry Partnerships

35 different research agreements

32 different companies

11% of all research expenditures (national average: 7%)

17 spin-off companies started by Pratt faculty