

## Major Research Efforts 2007 Emerging Areas

- **Biomedical Engineering**

- \$5.3 mil. NIH — multiphoton endoscopy
- \$3.2 mil. NSF IGERT—flexible implantable biosensors for medical diagnostics and therapeutics



Source: Claudia Fischbach-Teschl

- **Nanomaterials and Nanoscience**

- \$5.4 mil. DoD—ultra-high bandwidth silicon-based devices
- \$2.9 mil. NSF IGERT—interdisciplinary graduate student research program in nanoscience
- Proposal for \$25.0 mil. KAUST— nanoparticle fluids

- **Energy, Environment and Sustainable Development**

- \$6.0 mil. Biofuels Research Laboratory under construction
- \$5.0 mil. David D. Croll Professorship of Sustainable Energy Systems
- \$1.5 mil. DOE - fuel cell research

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## Major Research Efforts 2007 Enabling Areas

- **Information Science and Computation**

- \$1.2 mil. DoD—trustworthy computing
- \$0.45 mil. NSF - research in cryptography with applications in secure Internet (CAREER award)



Source: Cornell News Service

- **Complex Systems and Networks**

- Proposal for \$2.4 mil. NSF - modeling of birds in transmission of avian flu virus
- Proposal for \$3.4 mil. ONR - analysis and control of complex networks

- **Advanced materials**

- \$1 mil. + NSF - New generation electron microscope for color imaging at the atomic level installed in Duffield Hall
- \$0.2 mil. DoD - the pick up stick transistor
- \$17 mil. NSF - energy recovery LINAC (CHESS)

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# New Strategies in Research and Graduate Studies

- **Improving working relationship with OSP, OVPR, and CCTech**
  - Quarterly standing meetings
  - Actively seeking faculty views on process effectiveness
- **An awards and recognitions strategy**
  - Active focus on promoting Cornell faculty and alumni
  - National Academy of Engineering reception in Washington: 4 Cornell NAE inductees honored in 2007; Plans underway to honor 5 Cornell NAE inductees in 2008
- **Increasing the number of PhD fellowships**
  - Recruiting weekend to attract the best PhD students of the quality to be NSF scholars at Cornell
  - External scholarship nominations: Hertz, KAUST, CONACYT
  - Target on 1st year fellowships for 100+ entering graduate students

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# Building a sense of community

- **Engineering Research Showcase**
  - nearly 80 PhD, MEng and undergraduate research posters viewed by hundreds of visitors
  - a PhD oral presentation session highlighting results in strategic research areas
- **Fellowship Programs**
  - Knight Fellowships for best 1<sup>st</sup> year PhD students in Nanoscience
  - Knight MEng/MBA Scholarships for students interested in combining engineering and business
  - Joint Agreement with Cornell Grad School and El Consejo Nacional de Ciencia y Tecnología (CONACYT) for Mexican PhD student fellowships
- **Field Trips** with faculty and graduate students hosted by Cornell Engineering Alumni to visit corporate research facilities in energy, propulsion, combustion, imaging technology, biosensors, satellites, remote sensing, communication networks and other fields



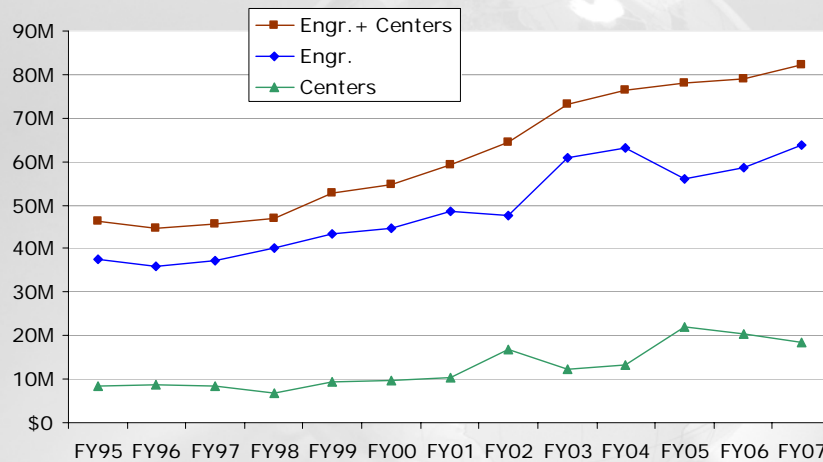
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# Connecting Engineering & Business Graduate Studies

- **MEng/MBA program in Energy, Sustainability and Environment (MESE)**
  - Joint program with Johnson Graduate School of Management
  - Features courses, projects and three semesters of internships co-supervised by industry mentors and Cornell Professors
  - MEng + MBA in 2½ years
  - Projected start Summer term 2009
- **Systems Engineering distance learning degree program**
  - MEng for working professionals
  - Part-time study through distance learning with small but critical face-to-face component
  - Project start Fall 2008
  - NYSED approval pending
- **South Africa Telkom Scholarship Programme**
  - MEng in Electrical and Computer Engineering/Technology Management for future executives
  - 6 students fully funded by company in 2007-08

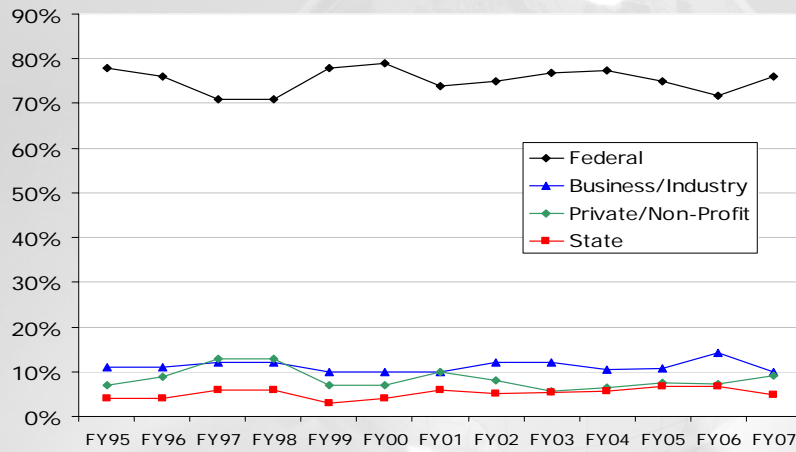
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# Research Expenditures



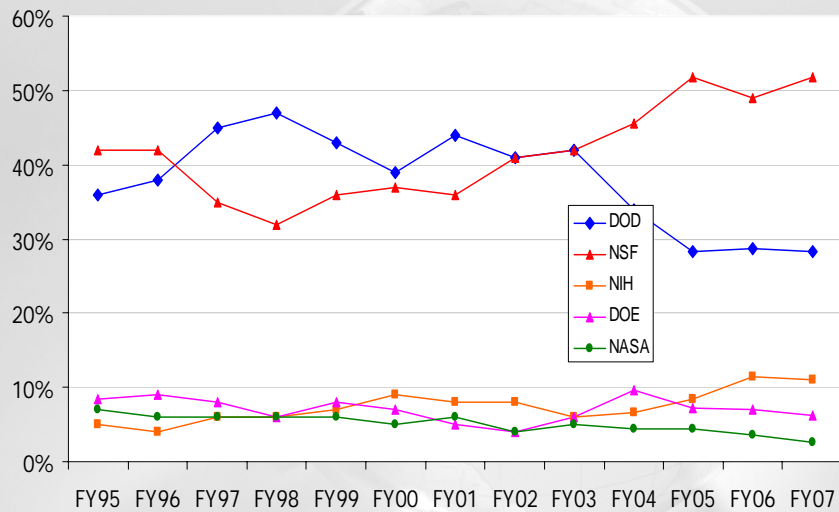
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## Percent Distribution of Research Expenditures



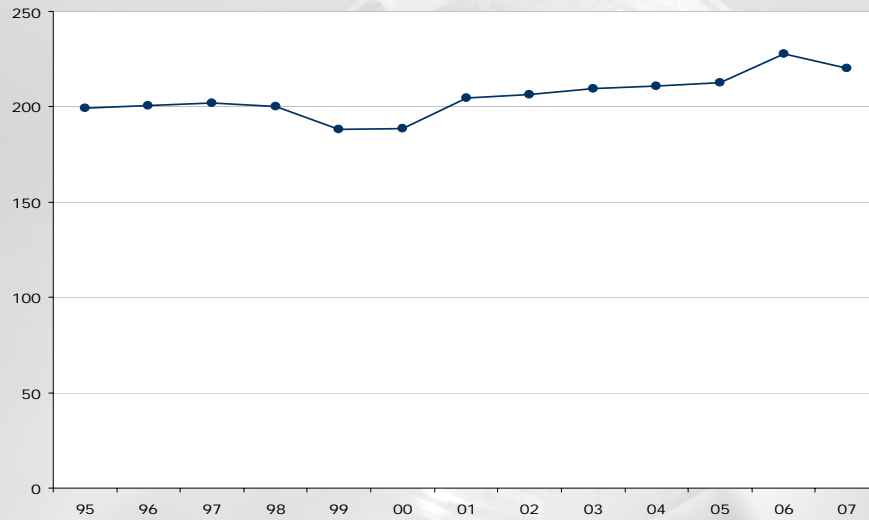
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## Research Expenditures – Distribution of Federal Funding



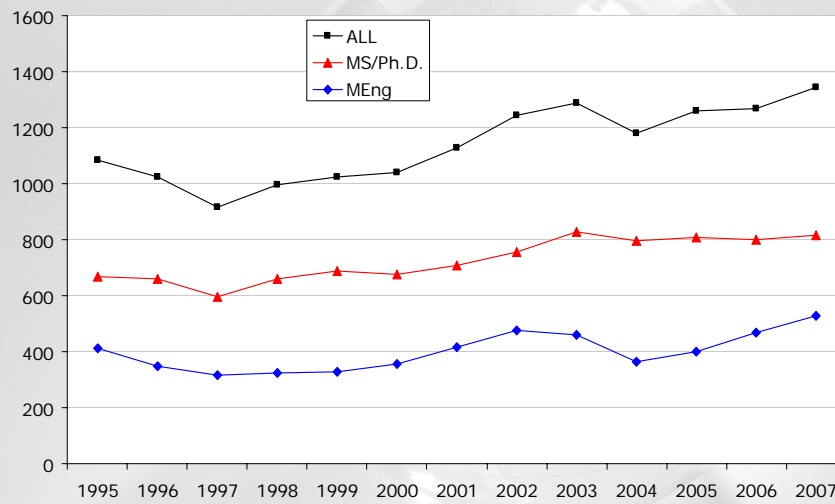
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## Faculty FTE



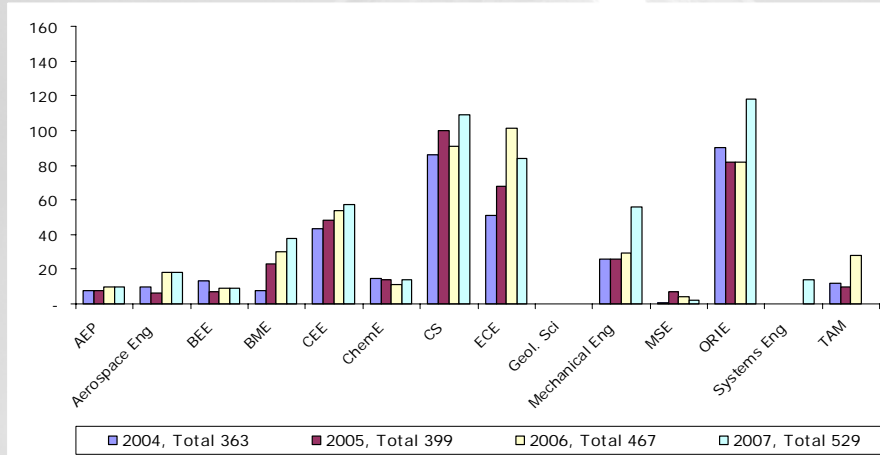
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## Graduate Student Enrollment



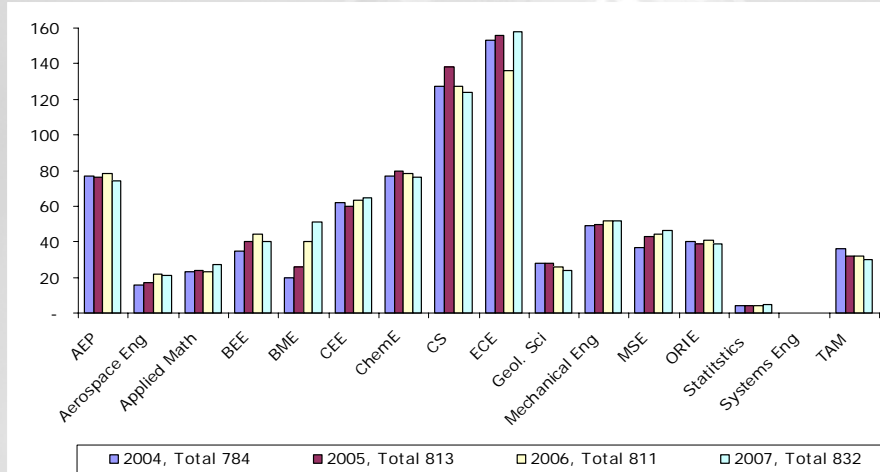
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# MEng Students by Field



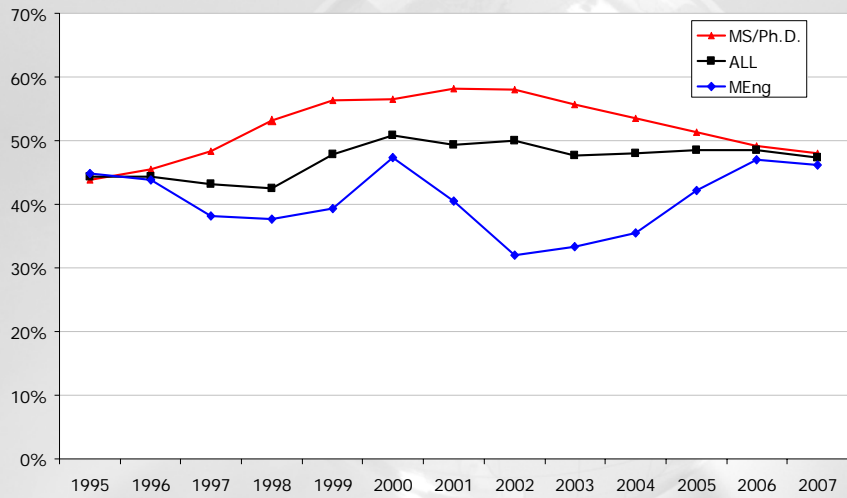
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# PhD Students by Field



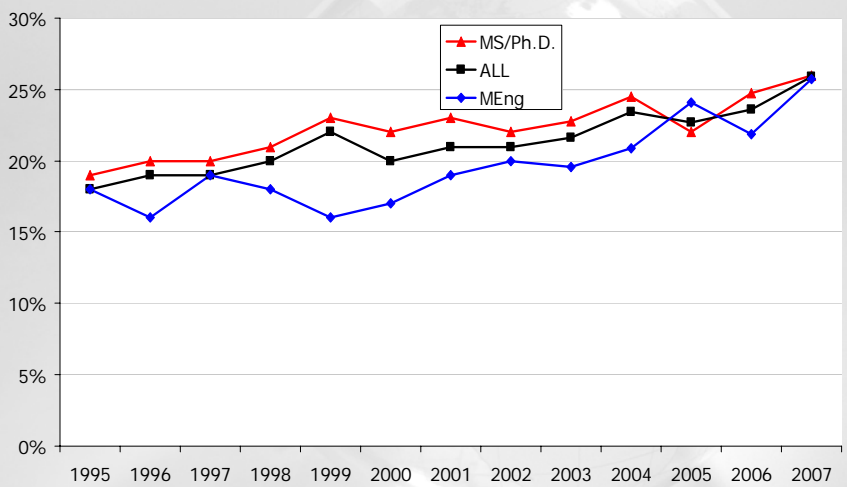
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## Graduate Student Enrollment International



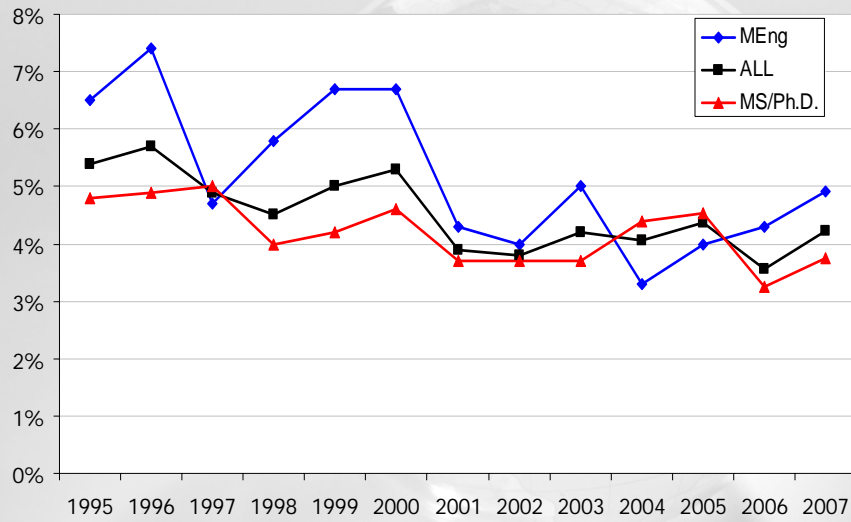
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## Graduate Student Enrollment Women



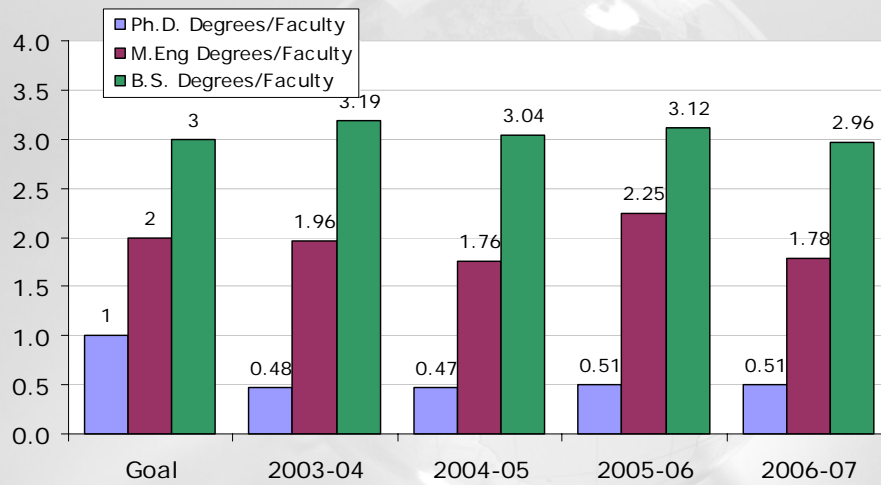
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## Graduate Student Enrollment Underrepresented Minorities



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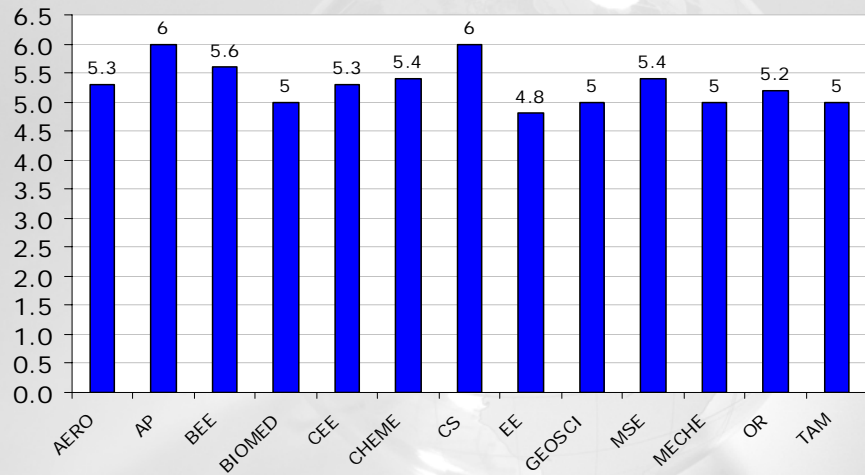
## Graduate 1 PhD, 2 MEng, and 3 BS Students per Faculty Each Year – 3:2:1 Goal



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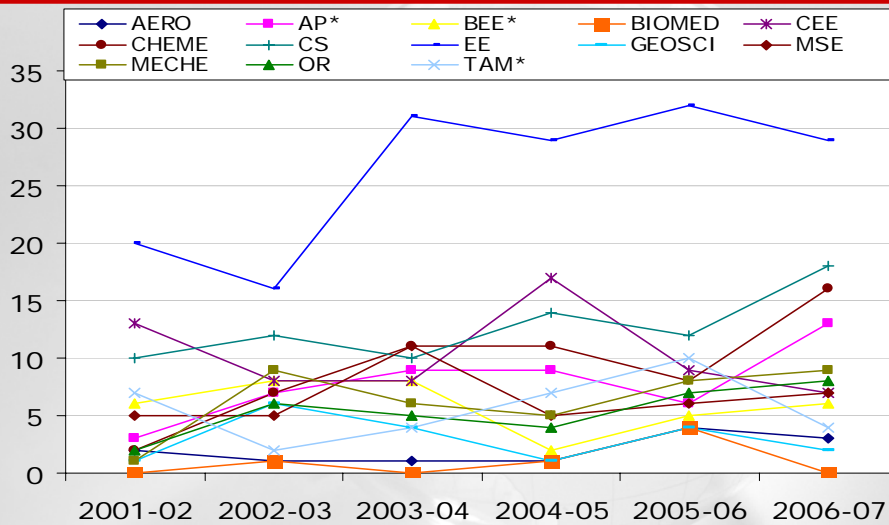


## Time to PhD Degree by Field



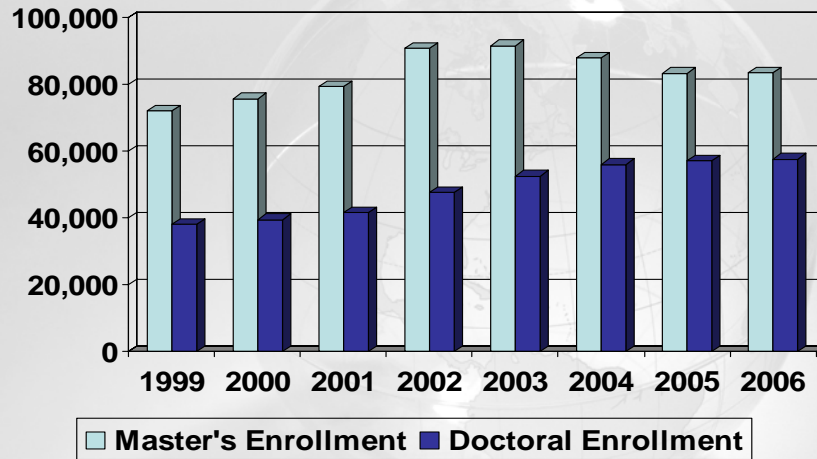
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## 3:2:1 Goal - # of PhDs by Field



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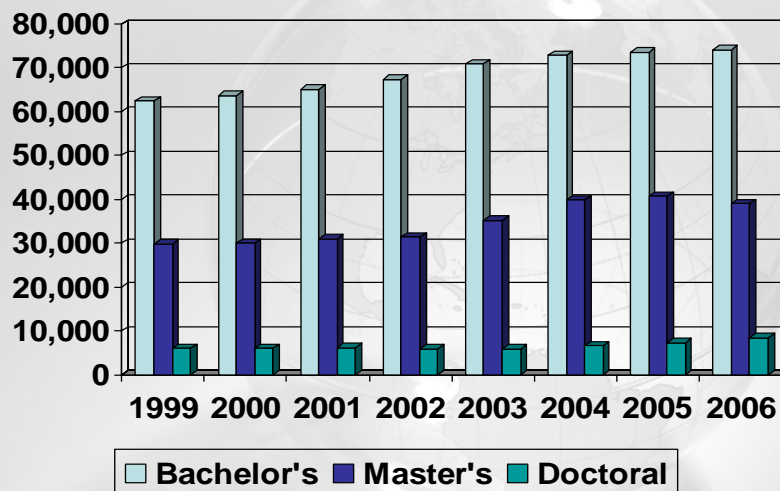
## U.S. Graduate Engineering Enrollment



U.S. Engineering Trends Presentation – July 2007, Michael Gibbons, ASEE

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## U.S. Engineering Degrees



U.S. Engineering Trends Presentation – 2007, Michael Gibbons, ASEE

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