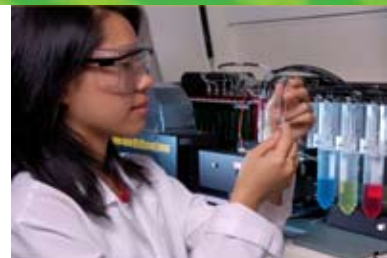


Chemical + Biomolecular Engineering

CORNELL ENGINEERING



Chemical Engineering Degree Programs

BS, MEng and MS/PhD

Who We Are

17 faculty, 2 lecturers, 85 PhD students, 15 M.Eng. students, and over 250 ChE-affiliated undergraduates. Assisted by only 10 administrative staff, some shared with BME.

Research Focus

- Biomolecular engineering: Focus by over one-third of the current faculty, connections to BME
- Complex fluids, polymers and soft materials. A hallmark of the department: We, with our colleagues in MAE, MSE, TAM and CEE, are national leaders
- Sustainable energy systems. A new growth area for us. We quickly jumped to the vanguard of activities through new faculty hires and curriculum development
- Electronic materials and microchemical systems. Highly interdisciplinary area leverages strength in MSE, Chemistry, and Applied Physics
- Considerable synergy between these areas leads to important leverage of investment

Trends

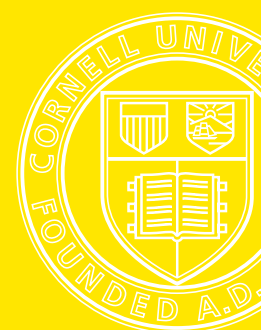
- Growth in entrepreneurial business activity by faculty
- Chemical and Biomolecular Engineering is positioned to lead the college in life sciences and sustainable energy systems
- Size of the undergraduate program has doubled from 45 to 90 seniors per year with incremental increase in size of the faculty

Accomplishments

- \$15M infrastructure renovation underway
- Strategic and “discipline-forward” faculty hires have provided us with arguably the best cohort of young CBE faculty in the country
- Pivotal recent hire: Jeff Tester from MIT to Cornell as Croll Chair

“In my opinion, the primary advantage of pursuing chemical engineering research at Cornell is the university’s commitment to integrating the physical and life sciences. This is reflected in a new university-wide research collaboration called the New Life Sciences Initiative, which was instrumental in my decision to come to Cornell over five years ago.”

—Matthew DeLisa, assistant professor



Recent Research Achievements

- Development of an energy-free “switch” based on surface tension (Spiderman effect) [Steen]
- Creation of an artificial tree rivaling the ability of redwood trees to draw water upwards [Stroock]
- Development of melt electrospinning process and associated computational modeling to produce novel nanoscale materials [Joo]
- New hollow metal oxide nanostructures with high lithium storage capacity for next-generation rechargeable batteries [Archer]

Priority Goals

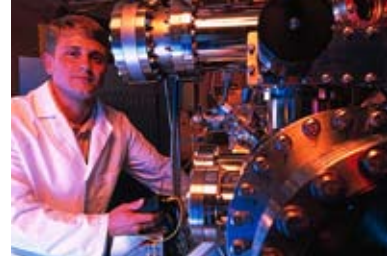
- **Education and Research:** Continue to play a leadership role in the college’s programs in sustainable energy systems
- **Education:** Continue to provide outstanding undergraduate and graduate programs
- **Research:** Retain star faculty. Increase faculty in biomolecular engineering/molecular biotechnology and in sustainable energy
- **Infrastructure:** Build a new wing to house the energy initiative in the college and expand our laboratory facilities

Challenges

- Retention of star faculty
- Paying for our renovation in the light of the current financial crisis
- Paying to recruit the best new graduate students
- Diversifying the faculty
- Maintaining faculty and staff morale through the difficult financial times ahead

Opportunities

- Seize opportunities to secure funding for energy research
- Global financial squeeze can be a chance for Cornell to seize opportunities



Todd Schroder (Engstrom group) studying atomic-scale deposition of materials.



Graduate students on the steps of Olin Hall.