



## 2021 Department at a Glance

### Overview

- PSE is one of the largest academic polymer centers in the world; more students have received their Ph.D. from PSE than from any other U.S. polymer program.
- In the most recent U.S. National Research Council rankings, PSE was top rated in polymer research, and when evaluated in the broader Materials Science and Engineering discipline - the program placed as high as 3<sup>rd</sup>.
- 200+ PSE students, post-docs, staff members, faculty members and visiting scholars conduct polymer research across the boundaries of traditional disciplines.
- PSE students and faculty members have received all the major national and international polymer awards (see below).
- Research is currently supported by sponsorship from NIH, DoD, NSF, ARO, DOE, ONR, FAA and other federal agencies as well as 40+ individual sponsors.
- 15-20 Ph.D.'s are awarded each year (over 650 since the programs inception in 1966)
- PSE research support exceeds \$15 million per year, and the cost of polymer-related instrumentation exceeds \$40 million.

### Education Highlights

- PhD degree program covers all aspects of the polymer field. Polymers are the ideal platform to teach the core scientific principals central to disciplines spanning chemistry, physics, materials science, and chemical engineering, yet with the broader, interdisciplinary perspective that is the hallmark of 21st century science and engineering.
- Cross-disciplinary research is integral to PSE, and on-campus collaborations extend to the departments of Biology, Chemical Engineering, Chemistry, Physics, Molecular and Cellular Biology, Kinesiology, Mechanical and Industrial Engineering, Food Science, and Vet and Animal Sciences. Off-campus projects include partnerships with many U.S. and foreign universities as well as U.S. National Labs.
- The PSE core curriculum, consisting of eight courses, trains all first-year graduate students in polymer synthesis, physics, material properties, and engineering, with the advanced laboratory courses ensuring hands-on abilities in each area.
- Invited world-class scientists present each week in the PSE seminar series.
- PSE offers special topics courses to advanced undergraduate and graduate students, and short courses are offered at professional meetings and for industry.
- Recent student awards include: NSF, DOE SCGSR, NIH, P&G, GAANN and Arkema fellowships. Over the same period, students received best paper/poster awards at numerous professional meetings.

### Professional Highlights

- Faculty members and students are heavily engaged in professional organizations such as the American Chemical Society, the American Physical Society, the Materials Research Society, the Adhesion Society, the American Institute of Chemical Engineers, and the Society of Plastics Engineers. Students and faculty members have chaired or co-chaired recent polymer Gordon Research Conferences along with other specialized polymer conferences.
- PSE faculty members are editors for the following high impact journals: *Macromolecules*, *ACS Macro Letters*, *Journal of Polymer Composites*, *Langmuir*, *Polymer Engineering and Science*, and *Journal of Chemical Physics*. Several faculty members sit on editorial advisory boards of these as well as other journals.
- Faculty Awards are numerous and distinguished, including memberships in the National Academies of Science and Engineering along with Presidential Early Career Awards in Science and Engineering (3 in total), numerous Early Career Awards from federal agencies, Percy Julien award of NOBCCChE, Sloan Research and Humboldt fellowships, Dillon Medals and High Physics Prizes of the APS, and the ACS Awards in Creative Polymer Chemistry and Applied Polymer Science. Most senior faculty members are fellows of one or more of the major professional societies.



### By the Numbers

Tenure-track Faculty	17
Technical Staff	9
Graduate Students	87
Postdoctoral Scholars	18

### Research Areas

Synthetic Polymer Chemistry  
Soft Materials Physics/Mechanics  
Nanostructured Materials  
Bio-Inspired Materials  
Energy and Green Science  
High Performance Composites  
Electronic Polymers/Devices  
Responsive Polymers

### Central Research Facilities

Electronic Materials Characterization  
Electron Microscopy  
Light Scattering  
Liquid Chromatography  
Nanotechnology Cleanroom  
Nuclear Magnetic Resonance  
Photovoltaics  
Rheology and Mechanical Testing  
Roll-to-Roll Processing  
Scanning Probe Microscopy  
Surface Analysis  
Thermal Analysis  
X-ray Diffraction and Scattering

### Apply to Graduate Program

[www.umass.edu/gradschool](http://www.umass.edu/gradschool)

### For More Information

Visit: [www.pse.umass.edu](http://www.pse.umass.edu)

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### Polymer Science & Engineering

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