Located in Akron, Ohio — a world-renowned center for polymer research and development — our facilities span three buildings on the UA campus: the Polymer Engineering Academic Center, which provides space for classrooms and faculty and student offices; the Sidney L. Olson Research Center, which houses all the department’s laboratory and research facilities; and the National Polymer Innovation Center, where new knowledge and materials are developed for solving problems of national interest related to health, energy and the environment.

We invite you to consider the benefits of studying at The University of Akron in the heart of the polymer industry. Should you have any questions or need additional assistance, please do not hesitate to contact us. We look forward to serving your academic needs in the future!

Welcome to the Department of Polymer Engineering

The Department of Polymer Engineering at The University of Akron (UA) offers both master’s and doctoral degrees in polymer engineering and seeks to provide students with a high-quality educational experience in the engineering and science of polymers.

Students are taught the skills of research by full-time professors in both classrooms and laboratories. Students come from throughout the United States and from numerous other countries, and graduates of the department have gone on to successful careers in private industry, government and academia.

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ADMISSIONS REQUIREMENTS

Students seeking admission into the Ph.D. program in the Department of Polymer Engineering are required to submit all of the materials listed below directly to The University of Akron Graduate School for consideration. Incomplete applications will not be considered under any circumstances.

1. Fully completed Graduate School Application
2. Application fee
3. ALL official undergraduate transcripts and, if applicable, graduate transcripts
4. Three (3) letters of professional recommendation
5. Statement of purpose (personal statement)
6. Submission of Graduate Record Examination (GRE) general test scores
7. All international students must submit official Test of English as a Foreign Language (TOEFL) scores with a minimum overall test score of 79 on the internet-based test AND a minimum of 23 on the speaking portion of the test. International students who have studied at or received a degree from a U.S. college must still provide TOEFL scores. If you are a permanent resident whose native language is not English, you must also provide the TOEFL scores.

Cumulative Grade Point Average (GPA) Requirement:
3.00 or higher overall on a 4.00 scale (or 75 on a 100-point scale for international students).

APPLY ONLINE

Please apply online at uakron.edu/gradsch. Please note that ALL application materials, forms, reference letters and scores must be submitted to The University of Akron Graduate School. The deadline for priority consideration of fully completed application files is Dec. 1 of each year. The deadline for regular admission consideration is Jan. 15. The Department of Polymer Engineering admits for fall semester only.

FUNDING YOUR EDUCATION

The Department of Polymer Engineering supports all first-year, full-time doctoral students by teaching assistantships (TA). Students may be assigned to work in departments outside the College of Polymer Science & Polymer Engineering. International students must meet the TOEFL standards as set forth above to qualify for funding. After the first year, funds for assistantship support are available from several principal sources, including The University of Akron Graduate School; externally funded research activities, such as grants or contracts obtained by faculty members; and financial gifts from companies, private donors or government and public foundations that allow for student fellowships, scholarships or other awards.
Dr. Kevin Cavicchi – Dean for Academic Affairs and Associate Professor
Ph.D. in Materials Science and Engineering, University of Minnesota, 2003
Phone: 330-972-5904  email: kac58@uakron.edu
Structure-property relationships of nanostructured soft materials; thermodynamics of small molecule organogelators and polymer/organogelator blends; synthesis and characterization of shape memory polymers; synthesis and characterization of supramolecular polymers through ionic interactions including block copolymers, ionically crosslinked elastomers, and polyelectrolyte-surfactant complexes.

Dr. Xiong Gong – Professor
Ph.D. in Physics, Nankai University, China, 1997
Phone: 330-972-4983  email: xgong@uakron.edu
Flexible electronics, uncooled solution-processed ultrasensitive broad-band photodetectors; polymer photovoltaics, hybrid perovskite photovoltaics; organic-based thermoelectric devices; supercapacitors and self-powered electronics; novel organic/polymeric and organic-inorganic hybrid materials; high electrical conductive inorganic quantum dots and nanostructured materials.

Dr. Sadhan C. Jana – Benjamin Franklin Goodrich Professor
Ph.D. in Chemical Engineering, Northwestern University, 1993
Phone: 330-972-8293  email: janas@uakron.edu
Design of functional materials for oil/water separation, drug delivery, and photocatalysis; mesoporous gel, aerogel, and aerogel foam structures in energy storage, nanoparticle filtration, virus removal, and oil-water separation; design of fillers for low rolling resistance rubber; metamaterials by 3D printing; novel scaffolds for tissue culture.

Dr. Fardin Khabaz – Assistant Professor of Polymer Engineering and Chemical Engineering
Ph.D. in Chemical Engineering, Texas Tech University, 2016
Phone: 330-972-5410
Physics of soft matter using theoretical and simulation tools; transport processes; design of advanced materials for processing, separation, and energy applications; multiphase flow; dynamics of molecules in geometrical confinement; jamming in suspensions and molecular glasses; thermodynamics and rheology of polymer blends and dynamic polymer networks.
Dr. Thein Kyu – Distinguished Professor
Ph.D. in Polymer Chemistry, Kyoto University, Japan, 1980
Phone: 330-972-6672  email: tkyu@uakron.edu
Phase equilibria and kinetics of phase separation in polymer blends; phase transitions in crystalline and liquid crystalline polymers; flexible and stretchable lithium ion polymer batteries; ion-exchange membranes; pattern formation dynamics and electro-optical properties of dispersed liquid crystal and photonic crystals and flexoelectric polymer electrolyte membranes.

Dr. Ruel McKenzie – Assistant Professor
Ph.D. in Chemical Engineering, New York University, 2013
Phone: 330-972-5344  email: rmckenzie@uakron.edu
Dynamics of complex systems; experimental physics of soft condensed matter; kinetics and dynamics of state transitions; enabling complex structures using advanced manufacturing and chemical synthesis techniques; multifunctional, adaptable and stimuli-responsive materials; nanocomposites; structure-processing-property-function characterization and relationships.

Dr. Erol Sancaktar – Professor of Polymer Engineering and Mechanical Engineering
Ph.D. in Engineering Mechanics, Virginia Polytechnic Institute and State University, 1979
Phone: 330-972-5508  email: erol@uakron.edu
Mechanical behavior of adhesives, polymers and composites; materials characterization; viscoelasticity; fracture mechanics; experimental and theoretical solid mechanics; design and manufacture with novel materials; elastomer/rubber/tire behavior and processing; wet friction, polymer-based friction elements, excimer laser applications in polymers; electrically conductive adhesives and polymers; nanocomposites and nanodevices.

Dr. Mark D. Soucek – Department Chair and Sundar L. Aggarwal Professor
Ph.D. in Inorganic Chemistry, The University of Texas at Austin, 1990
Phone: 330-972-2583  email: msoucek@uakron.edu
Coatings technology in high solids, waterborne, UV-curable and powder coatings; environmentally benign coatings; nanophase inorganic/organic coatings; study of crosslinking processes; self-stratifying coatings; corrosion resistant coatings; anti-reflective coatings; magnetic initiators for cure on demand.

Dr. Weinan Xu – Assistant Professor
Ph.D. in Materials Science and Engineering, Georgia Institute of Technology, 2015
Phone: 330-972-6675  email: weinanxu@uakron.edu
Hybrid functional materials; stimuli-responsive polymers; 2D layered materials; 2D polymers; 3D micro/nanofabrication; origami/kirigami folding; soft actuators and robotics; biosensing and bioelectronics.
DOCTOR OF PHILOSOPHY
DEGREE REQUIREMENTS
Currently, to achieve the Ph.D. in Polymer Engineering, a student must complete:

» 96 credits in polymer engineering, including:
  • 12 credits of polymer engineering core courses
  • 10 credits of polymer engineering 600-level electives
  • 9 credits of polymer engineering 700-level electives
  • 3 credits of math
  • 2 credits of technical electives
  • 60 credits of preliminary research and doctoral dissertation (12 credits or more must be of doctoral dissertation)

» An oral presentation of a research proposal
» A written dissertation
» An oral defense of the dissertation

MASTER OF SCIENCE
DEGREE REQUIREMENTS
Currently, to achieve the M.S. in Polymer Engineering, a student must complete:

» 30 credits in polymer engineering, including:
  • 12 credits of polymer engineering core courses
  • 6 credits of polymer engineering 600-level electives
  • 6 credits of technical electives
  • 6 or more credits of research

» A written thesis
» An oral defense of the thesis

After Graduation
Polymer engineering students enjoy a 100% job placement rate after receiving their degree. Graduates go on to successful and lucrative careers in private industry, government and academia. Here are some of the employers of UA polymer engineering alumni:

- 3M Co.
- Abbott Vascular
- Apple Inc.
- Avery Dennison Corp.
- Baker Hughes, a GE Co.
- BASF
- The Boeing Co.
- Bridgestone Corp./Firestone Tire and Rubber Co.
- Celanese Corp.
- The Coca-Cola Co.
- Compagnie de Saint-Gobain S.A.
- ConocoPhillips Co.
- Corning Inc.
- DuPont
- Eastman Chemical Co.
- Exxon Mobil Corp.
- General Electric Co.
- The Goodyear Tire & Rubber Co.
- Halliburton Co.
- Honda Motor Co. Ltd.
- Hyundai Motor Co.
- IBM
- Intel Corp.
- John Deere
- Johnson & Johnson
- Kimberly-Clark Corp.
- Laird plc
- Lexmark International Inc.
- LG Chemical
- L’Oréal
- The Lubrizol Corp.
- LyondellBasell Industries
- PepsiCo Inc.
- Pirelli & C. S.p.A.
- PolyOne Corp.
- PPG Industries Inc.
- Rensselaer Polytechnic Institute
- SABIC
- Samsung
- Schlumberger Ltd.
- Sealed Air Corp./Cryovac Inc.
- Shell Oil Co.
- The Sherwin-Williams Co.
- TaylorMade Golf Co.
- Teknor Apex
- U.S. Air Force Research Laboratory
- U.S. Department of Agriculture
- U.S. Food & Drug Administration
Life in Akron

With a population of nearly 200,000, Akron is Ohio’s fifth-largest city. It offers a vibrant downtown, serene parks, shopping, events and venues that appeal to almost every interest. Its regional location and easy access to air and highway travel puts you at the hub of a world of experiences and opportunities.

Nearby Attractions

- Akron Art Museum
- Akron Marathon
- Akron RubberDucks (AA baseball)
- Akron Symphony Orchestra
- Blossom Music Center
- Cedar Point amusement park
- Cleveland and Akron Zoos
- Cleveland pro sports (Browns, Cavaliers, Indians)
- Cuyahoga Valley National Park
- Cuyahoga Valley Scenic Railroad
- Lake Erie and Great Lakes Region
- National First Ladies’ Library
- Playhouse Square theater district
- Soap Box Derby
- Stan Hywet Hall & Gardens
- William McKinley Presidential Library & Museum

About The University of Akron

Established in 1870, The University of Akron (UA) offers top-ranked and in-demand associate, bachelor’s, professional and doctoral degree programs in the liberal arts, sciences, health care, engineering, law, business, education and more. Its beautiful metropolitan campus, located in the heart of Ohio’s fifth-largest city, is surrounded by thousands of businesses, including Fortune 500 companies, providing countless opportunities for internships, co-ops and part-time employment. With more than 300 student organizations, championship-winning NCAA Division I sports teams and a highly ranked Student Recreation and Wellness Center, UA provides the full campus experience.