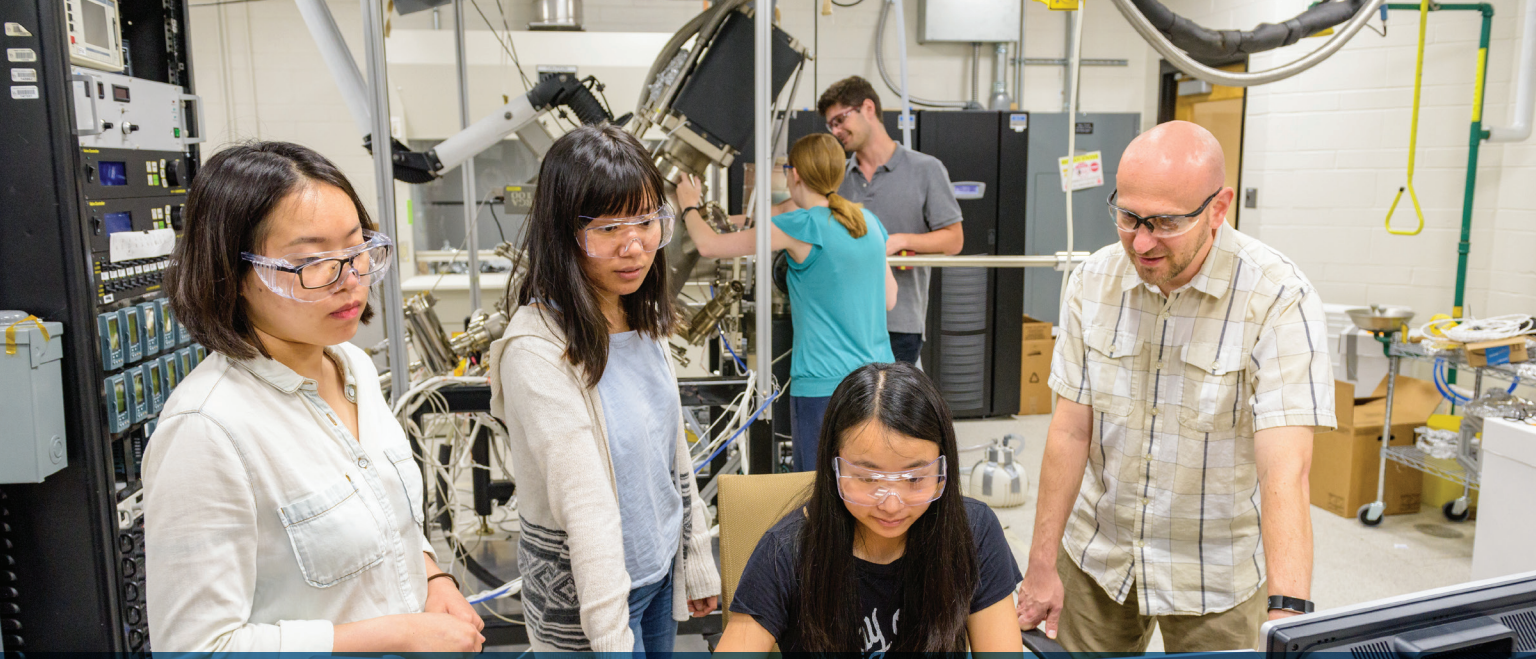

UNIVERSITY OF DELAWARE
ENGINEERING

Department of Materials Science & Engineering

DOCTORATE IN MATERIALS SCIENCE & ENGINEERING

The department's major research efforts involve both "soft materials" consisting of polymers and biomaterials and "hard materials" consisting of electronic materials, inorganic and organic thin films, surfaces and interfaces, nanoscale materials and composites. There are ongoing fundamental studies of self-assembly in block copolymers, crystallization, morphology and the synthesis and characterization of advanced polymeric materials. The area of biomaterials brings together research in materials chemistry and biology with an emphasis on tissue engineering, responsive gels, biosensors, and drug delivery. Research in electronic materials is focused on III-V semiconductors for quantum dots, electroluminescent polymers for energy-efficient light emitting diodes and the development of materials and device structures for photovoltaic (solar energy) applications in conjunction with the Institute of Energy Conversion. Fiber reinforced composites are being investigated in conjunction with the Center for Composite Materials for applications that range from lightweight armor to civilian infrastructure (bridge) programs. The areas of inorganic thin films, surfaces and interfaces address the fundamental physical and chemical properties of nanostructured materials.

Learn more at www.**mseg.udel.edu**

RESEARCH AREAS OF FOCUS

- POLYMERS AND COMPOSITES
- BIOLOGICAL AND BIOMEDICAL MATERIALS
- PHOTOVOLTAICS
- PHOTONIC MATERIAL
- NANOMATERIALS
- ELECTRONIC MATERIALS
- INORGANIC-ORGANIC HYBRID MATERIALS
- SELF-ASSEMBLY OF MATERIALS
- THIN FILM MATERIALS
- MATERIALS CHARACTERIZATION

UNIVERSITY OF DELAWARE

REQUIREMENTS

PREREQUISITE REQUIREMENTS – PH.D. DEGREE

A student entering the Materials Science and Engineering Graduate Program normally possesses a bachelor's (or higher) degree in a physical science or engineering discipline. A successful candidate for admission would minimally have taken courses to the following levels: mathematics, through partial differential equations, physics, including mechanics, heat, electricity, magnetism and introductory modern physics, chemistry, through physical chemistry; and introduction to materials science. In addition, courses in thermodynamics, field concepts, phase transformations, biology, biochemistry, and structure and mechanical properties of materials are considered very useful.

ADMISSIONS REQUIREMENTS – PH.D. DEGREE

Admission requirements are normally (1) completion of a bachelor's degree with a GPA of at least 3.2, (2) three excellent letters of recommendation from faculty or scholars, and (3) TOEFL score of 79 or higher. GRE is not required. Admission decisions are made by a committee of the Materials Science and Engineering faculty.

PH.D. DEGREE CURRICULUM

The Doctor of Philosophy (Ph.D.) degree requires 33 total credits (24 credit hours of course work and 9 credits of MSEG969 doctoral dissertation work on a research topic approved by the student's advisor). Of the 24 credits (8 courses) of course work, 9 credits must be three required core courses, another 6 credits are chosen from an approved list of 5 non-core courses, and an additional 9 credits of technical electives must be chosen from the same approved list of 5 non-core courses or other courses approved by the student's research advisor. All Ph.D. candidates must pass their Ph.D. Qualifying Exam and be admitted into Doctoral Candidacy, complete a data defense, a dissertation (of publishable quality), and defend their dissertation research.

Students already holding a Masters degree from another program or university accepted to the MSEG Ph.D. program are required to complete 9 credits of MSEG969 doctoral dissertation (after passing their Ph.D. Qualifying Exam and are admitted into Doctoral Candidacy) and will have their previous coursework evaluated by the faculty to determine if/which additional courses are required. They too will be required to complete a data defense, a dissertation (of publishable quality), and defend their dissertation research.

APPLY ONLINE

For more information about graduate admission and to apply online, visit the Graduate College at **https://grad.udel.edu/apply/**.

PROGRAM INFORMATION

www.mseg.udel.edu/students/graduate/phd-requirements/

FUNDING

Awards of financial assistance (fellowships and assistantships)—which include graduate tuition and a competitive stipend—are made on the basis of merit. Students who complete applications by January 15 are given preference. Contact the faculty in your area(s) of interest to discuss potential research opportunities today!

ADMISSION DEADLINES

December 15: Fall application deadline

CONTACT

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