The Department of Chemistry and Biochemistry at the University of Delaware has been a historical leader in the molecular sciences and our rich traditions are highlighted by the award of the Nobel Prize in Chemistry in 2010 to Prof. Richard F. Heck, a longtime member of our faculty. Our department has continued to build upon this legacy, having assembled a dynamic and energetic faculty working at the cutting edge of chemical research.

As a measure of our current strength, research expenditures within our department are approaching $10 million annually, with more than 180 full-time Ph.D. students pursuing degrees in our program. Our department offers many advantages to students looking to pursue advanced studies in the chemical sciences.

Research Areas
Our department offers opportunities for Ph.D.s in a range of traditional research areas including analytical, inorganic, organic, and physical chemistry, as well as biochemistry. Within these areas, we place major emphasis on collaborative and interdisciplinary inquiry.
Research focus areas within our department include:

» Asymmetric and transition metal catalysis
» Biological and inorganic materials chemistry
» Chemical biology
» Energy and environmental sciences
» Electrochemistry and photochemistry
» Experimental and computational enzymology and biophysics
» Organic and inorganic synthesis
» Spectroscopy and imaging
» Surface and interface sciences

Our Faculty
The cornerstone of our department is our dynamic faculty. We are home to more than 27 research active faculty members working across chemistry and biochemistry. In addition to the 2010 Nobel Prize, our faculty have received numerous

“The friendly, open atmosphere really encourages interdisciplinary collaborations, ultimately benefiting everyone in the research community.”

—Amy Schaefer, Ph.D. Student
awards in recent years. These include:

» Multiple AAAS Fellows
» Multiple Alfred P. Sloan Research Fellows
» Camille Dreyfus Teacher-Scholar Awards
» Multiple Cottrell Scholar Awards, Research Corporation
» DuPont Young Professor Awards
» Over 10 NSF CAREER Awards

Our Facilities

Critical to the success of modern research is access to advanced instrumentation. Our department occupies more than 200,000 square feet of laboratory and classroom space. In addition, we host an impressive range of instrumental facilities that support our research effort. Our facilities include expertly staffed:

Magnetic Resonance Laboratory with more than eight high-field NMRs ranging from 400...
“The faculty at UD were pivotal to my success. Beyond their knowledge and expertise, their passion and relentless pursuit of the scientific unknown is contagious... I couldn’t feel more prepared for the road ahead than I do right now having earned my doctorate from UD.”

to 850 MHz. These instruments are equipped with a range of capabilities, including auto-sampling and cryogenic probes, and support a broad range of nuclei for analysis in solution and solid state. The facility also supports EPR capabilities.

Mass Spectrometry Laboratory with a range of modern mass spectrometers capable of both routine and high-resolution analysis of samples ranging from air-sensitive organometallic complexes to large biomolecules.

Crystallography Laboratories housing advanced X-ray diffractometers equipped with dual wavelength, bright X-ray sources. In addition, the department also houses powder diffraction and biological X-ray diffractometers, allowing characterization of samples ranging from small molecules and inorganic materials, to peptides and whole proteins.

Surface Analysis Facility with a full range of surface analytical techniques, including start-of-the-art TOF-SIMS and XPS instrumentation.

Computational Facility housing over 3600 CPU cores, 43,000 GPU cores, 8.1 terabytes of RAM, and 1.1 petabyte of storage across a dozen clusters connected by 10 Gb and 40 Gb high speed ethernet interconnects. In addition, the full-time computational scientist supports computational investigations within the department.
In addition, our department has fully staffed glass blowing, machining, and electronics shops, as well as access to state-of-the-art campus facilities for advanced microscopy, materials characterization, bioimaging, genome sequencing, proteomics, magnetic resonance imaging, and animal research, making the resources and support available to support any research effort.

**Research & Training Centers**

Three NIH supported centers are housed within our department:

We host a **NIH Chemical and Biology Interface** (CBI) training program that brings together researchers from across campus working at the interface of chemistry and biology. This center also provides unique training opportunities for students interested in working within this important arena, including two years of fellowship support.

**Two NIH Centers for Biomedical Research Excellence (COBREs)** are also housed within the department. These centers are focused on the **development and study of novel biomaterials**, and on the **development of new therapeutic leads and molecular probes** for the treatment of human disease. Total funding for these two centers currently exceeds $15 million dollars, which provides significant research support and infrastructure for investigations in these critical areas.
In addition, our faculty members are associated with numerous other centers and institutes from across the campus and Delaware research community, including:

» Delaware Biotechnology Institute
» Catalysis Center for Energy Innovation
» Center for Catalytic Science and Technology
» Center for Membrane Protein Production and Characterization (NIH-COBRE)
» Center for Translational Cancer Research

“The university’s central location provided me networking opportunities with professionals from major chemical corporations.”

- Rachel Pupillo, Ph.D. Student

*Discovering a new chemical reaction. X-Ray diffraction structure of a palladium silyl iodide complex from the Silyl-Heck reaction.*
Graduate Student Life

Our department prides itself on providing an outstanding graduate student experience. In addition to a heavy focus in research training, our program provides in-depth, rigorous coursework to prepare our students for the intellectual demands of modern science. Furthermore, students are exposed to the forefront of research in multiple weekly seminar series and student-run journal clubs.

Over 180 Ph.D. students are currently being trained in our program. All Ph.D. students are supported by a competitive stipend that is guaranteed for five years, allowing our students to focus on their research and education.

The University of Delaware is located in Newark, DE in the heart of the mid-Atlantic region. Our close proximity to major east coast cities (within 90 minutes of both New York City and Washington, DC) provides easy access to major urban centers, yet the small

“Everything is close and there is always something to do.”

- Natasha Kowaleuski, Ph.D. Student
town feel of Newark provides for a comfortable and affordable life-style.

For more info

Find more information about our department, as well as links to the online application forms, at www.chem.udel.edu. The application deadline for graduate study is February 1. A limited number of fee waivers are available to encourage applicants from underrepresented backgrounds (see gradwav.dbi.udel.edu).

“Newark has a small town feel that makes you feel at home while still being close to major cities.”

- Mackenzie Lauro, Ph.D. Student
“The feel of the community is what really drew me to UD. More so than any other school I looked at, I felt welcomed to a friendly and collaborative workplace at UD.”

- Will Trout, Ph.D. Student
DEPARTMENT OF
Chemistry & Biochemistry

Equipping the next generation of scientists with the tools to tackle the challenges of tomorrow

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