Chemistry, Ph.D.

Learning Outcomes
Students will:

- independently learn new chemical principles and techniques beyond those typical of undergraduate academic training;
- identify original and worthwhile chemical problems stated as research questions and hypotheses;
- design and execute experiments as part of independent chemistry research investigations;
- critically evaluate their data, results, and conclusions and those of others in the chemistry community;
- identify potential problems in the responsible conduct of research and identify strategies for managing those problems;
- articulate standards for laboratory safety in chemical research, assess potential hazards they may encounter in novel chemistry research, and develop effective strategies to mitigate those risks; and
- communicate chemical knowledge, new models, and research results both orally and in writing for both technical and nontechnical audiences.

Requirements
The Doctor of Philosophy program in chemistry requires a minimum of 72 s.h. of graduate credit. Degree requirements include proficiency examinations and core courses as necessary, a minimum of 11 s.h. of advanced coursework, and research.

Students who meet the course requirements with a cumulative g.p.a. of 3.00 or higher are admitted to the oral comprehensive examination upon presentation and preliminary approval of their written research proposal and research progress report; they must take the oral comprehensive examination no later than the end of their second year of enrollment.

Upon completing Ph.D. research, candidates prepare the dissertation. The final examination consists of an oral defense of the thesis, at which time the candidates present at least one published or accepted paper in a peer-reviewed journal based on the publishable portion of the thesis.

Combined Programs
Ph.D./M.D.
Students may work toward the Doctor of Medicine degree and a Ph.D. in chemistry in a combined degree program offered by the Carver College of Medicine and the Graduate College. Applicants must be admitted to both programs before they may be admitted to the combined degree program. See the Medical Scientist Training Program (Carver College of Medicine) in the Catalog.

Admission
Applicants for graduate admission should have a bachelor's degree with a major in chemistry or a related field, preferably with a g.p.a. of 3.00 or higher. Most admitted graduate students receive financial support. For application information, contact the Department of Chemistry or visit its website.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations on the Graduate College website.

Career Advancement
Students with a chemistry degree can pursue careers in a wide range of fields. Learn more about career options for chemistry majors on the American Chemical Society website. The Pomerantz Career Center offers multiple resources to help students find internships and jobs.