CHEMISTRY, PH.D.

The department offers a master of science and a doctor of philosophy in chemistry. Specializations within the program are analytical, inorganic, materials, organic, and physical chemistry as well as chemical biology. Breadth coursework may be taken in other departments including physics, mathematics, computer sciences, biochemistry, chemical engineering, and in fields other than the student’s specialization within the Department of Chemistry.

Excellent facilities are available for research in a wide variety of specialized fields including synthetic and structural chemistry; natural product and bio-organic chemistry; molecular dynamics and photochemistry; biophysical, bioanalytical, and bioinorganic chemistry; spectroscopy (including magnetic resonance and microwave), theoretical and experimental chemical physics, chemical dynamics, quantum and statistical mechanics; macromolecular and polymer chemistry, materials science, surface and solid-state chemistry; x-ray crystallography, lasers, and light scattering; and chemical education. Programs are assisted by department computing and instrument centers and by other facilities on campus including those of the Division of Information Technology (DoIT).

Information on the research fields of faculty members is available on the chemistry website (http://www.chem.wisc.edu) and in a brochure available from the department.

The department offers opportunities for graduate students to obtain teaching experience. Financial assistance is available to most graduate students in the form of teaching or research assistantships, fellowships, or traineeships.

FUNDING

Prospective students should see the program website for funding information.

REQUIREMENTS

MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

DOCTORAL DEGREES

Ph.D.

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Course attribute are identified and searchable in the university's Course Guide (http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle).

PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above from a UW–Madison undergraduate career are allowed to count toward the minimum graduate degree credit requirement; if those 7 credits are numbered 700 or above from a UW–Madison undergraduate career, they are allowed to count toward the minimum graduate coursework requirement. All credits so counted must be over and above the minimum credits that were required by the original undergraduate degree. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison special student toward the residence and degree credit requirements; if those 15 credits of coursework taken as a UW–Madison Special student are numbered 700 or above, they are allowed to count toward the minimum graduate coursework requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

CREDITS PER TERM ALLOWED

15 credits

PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

OVERALL GRADUATE GPA REQUIREMENT

3.00

OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result
in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

**TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

Prospective graduate students are expected to have satisfactorily completed the equivalent in class and lab of the fundamental courses in chemistry offered at UW–Madison, one year of physics, and mathematics through calculus. Students who have not completed all the prerequisites may be admitted in exceptional cases, but any deficiencies must be made up in the first year of graduate study.

A grade point average of 3.0 (on a 4.0 scale) in the last 60 hours of undergraduate work is the minimum required for admission to graduate studies. The Graduate Record Exam (GRE) is also required. The subject test is recommended for fellowship applicants, and required for international applicants. Students for whom English is not the native language are required to present scores from the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS). Before teaching assistant appointments can be finalized, students for whom English is a second language must participate in the SPEAK Test, the institutional version of the Test of Spoken English (TSE).

**LEARNING OUTCOMES**

**KNOWLEDGE AND SKILLS**

- Articulates research problems, potentials, and limits with respect to theory, knowledge, and practice within an area of chemistry.
- Formulates ideas, concepts, designs, and techniques beyond the current boundaries of knowledge within an area of chemistry.
- Creates research and scholarship that makes a substantive contribution to an area of chemistry.
- Demonstrates breadth within their learning experiences.
- Advances the beneficial societal impacts of research in chemistry.
- Communicates complex scientific ideas in a clear and understandable manner.

**PROFESSIONAL CONDUCT**

- Fosters safe, ethical, and professional conduct.

**ADDITIONAL LEARNING GOALS**

- All doctoral degrees awarded in the chemistry department are research-based and culminate in a dissertation. Regardless of whether an individual is awarded a master's degree, the doctoral level learning goals are inclusive of the master’s level learning goals.

**PEOPLE**

**Faculty:** Professors McMahon (chair), Andrew, Berry, Blackwell, Brunold, Burke, Burstyn, Cavagnero, Choi, Coon, Crim, Cui, Ediger, Fredrickson, Garand, Ge, Gellman, Gilbert, Goldsmith, Gopalan, Hamers, Hermans, Hsung, Jackson, Jin, Kiessling, Kuech, Landis, Li, Lynn, Mecozzi, Middlecamp, Moore, Nathanson, Pedersen, Raines, Record, Schmidt, Schomaker, Schwartz, Shakhashiri, Sibert, Skinner, Smith, Stahl, Strieter, Tang, Weisshaar, Woods, Wright, Yethiraj, Yoon, Yu, Zanni