Chemistry

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The Department of Chemistry provides a flexible and dynamic environment in which to pursue a Master of Science or Doctor of Philosophy degree in chemistry. Students have the opportunity to work with faculty with interests in Biochemistry, Chemical Education, Environmental Chemistry, and Materials Science, as well as in Analytical, Inorganic, Organic, and Physical Chemistry. The faculty has active research programs in Synthesis (inorganic, organic, polymer and supramolecular synthesis), Surface Chemistry (catalysis and corrosion studies), Spectroscopy (IR laser spectroscopy and bioanalytical applications for Raman and Surface Enhanced Raman methods), Structural Biology (using NMR, calorimetry and computational methods), and Biophysical studies (including cancer drug discovery). Environmental research programs focus on the development of novel miniature chemical sensors and on pesticide and herbicide transport while computational chemists are developing *Ab initio* and semiempirical methods to study complex biological systems and important chemical processes. The research is supported by an array of in-house equipment. NMR spectrometers include 600-MHz and 300-MHz instruments. An EPR spectrometer and single crystal and powder X-ray diffractometers with CCD detection are maintained in the department. Students also have access to a wide range of instruments including UV-vis, FT-IR, and UV/Vis/near-IR spectrophotometers, as well as mass spectrometers, including GC-MS, LC-MS, and quadrupole ion trap instruments. Individual research labs maintain an array of instruments including: lasers, an atomic force microscope, a Laser Raman microscope, ITC and DSC microcalorimeters, a stopped-flow UV/vis system, a spectrofluorimeter, a Circular Dichroism spectropolarimeter, a scanning electrochemical microscope, and numerous GC and HPLC instruments. Research and teaching assistantships are available. The department also offers five GAANN (Graduate Assistance in Areas of National Need) fellowships to qualified U.S. residents. For more information write to the Graduate Coordinator or visit the chemistry department website (http://www.chemistry.msstate.edu) .

Admission Criteria

All students who have earned a B.S. in chemistry, biochemistry, or other closely related field will be given full consideration for admission and the award of an assistantship. Although not required, the admissions committee encourages international students to take the GRE general test. International students may be admitted with a TOEFL (Test of English as a Foreign Language) score of 477 PBT (153 CBT or 53 iBT) or an IELTS (International English Language Testing Systems) score of 4.5 (University minimum), but a TOEFL score of at least 550 PBT (213 CBT or 79 iBT) or an IELTS score of 6.5 is required for a student to be considered for financial aid.

Provisional Admission

Provisional admission may be granted to a student with some deficiency in her/his chemistry background. Students admitted to provisional status are eligible for advancement to regular status after receiving a 3.00 GPA on the first 9 hours of regular graduate-level courses taken after admission to the program. Courses with an S grade, transfer credits, or credits earned while in unclassified status cannot be used to satisfy this requirement. The specific courses used to overcome these deficiencies are chosen by the department's graduate committee on a case-by-case basis.

Academic Performance

An overall GPA of 3.00/4.00 on all graduate courses taken after being admitted to the program is required by the University to remain in good standing. The Department of Chemistry requires a B average on all chemistry courses above the 6000 level. If a student fails to meet either criterion, he or she is placed on probation. If the student does not correct the deficiency within one semester, the student may be dismissed from the program.

Master of Science in Chemistry

CH 8111	Professional Chemistry	1
Research		6
Coursework at 8000-level or higher [1]		22
Seminar		1
Total Hours		30

[1] Coursework outside the department at the 6000 level may be deemed acceptable by a student's supervisory committee but cannot constitute more than 50% of the total program.

Each graduate student must complete a research project, write a thesis, and defend their results before a faculty committee.

Doctor of Philosophy in Chemistry

CH 8111	Professional Chemistry	1
Coursework at 8000-level or higher [1]		18
3 seminars		3
CH 9000	Dissertation Research/ Dissertation in Chemistry	20
Total Hours		42

1 Coursework outside the department at the 6000 level may be deemed acceptable by a student's supervisory committee but cannot constitute more than 50% of the total program.

In addition, each Ph.D. student must pass a series of cumulative exams and an oral proposal examination.

Each graduate student must complete a research project, write a dissertation, and defend their results before a faculty committee.