

Course Requirements for Ph.D. Candidates

Revised Jan 2011

All students will take a full credit of CHEM389 (research Methods) including the library module **AND** additionally a minimum of **five** other courses toward completion of their degree. Individual research advisors may require additional course work. Courses must be selected from at least **three** different topical categories (A1, A2, B1, or B2).

- A1 – Physical/Computational:** Nuclear Science (CHEM 342)
Computational Chemistry (CHEM 367)
Quantum Chemistry (CHEM 370) **or**
Quantum Mechanics (PHYS 305)
Principles of Molecular Modeling (CHEM 373) **or**
Advanced Computer Simulation Lab (PHYS 327)
Statistical Thermodynamics (CHEM 322) **or**
Statistical Mechanics (PHYS 309)
Solid State Physics (PHYS 310)
- A2 - Spectroscopy/Analytical:** Crystallography, Diffraction, Scattering (CHEM 358)
Magnetic Resonance Theory (CHEM 361)
EPR Spectroscopy (CHEM 365)
Biomolecular NMR (CHEM 366)
- B1 - Organic/Inorganic:** Advanced Organic (CHEM 331)
Synthetic Organic (CHEM 333)
Natural Products (CHEM 335)
Organometallic (CHEM 336)
Inorganic Materials (CHEM 356)
Polymer Science (CHEM 381)
- B2 - Biochemistry:** Molecular Genetics (BCMB 328)
Bioinorganic Chemistry (CHEM 352)
Protein Chemistry (BCMB 375)
Computer Biochemistry (CHEM 379)
Polymeric Biomaterials (CHEM 383)
Seminar in Genetics (BIOL 317)
Signal Transduction (BIOL 334)
Seminar in Cell Biology (BIOL 338)

In general, all 300 level courses not normally required for an undergraduate chemistry or BCMB major are eligible for credit. This excludes CHEM 250, 260, 262, 264, 271 and 272. Permission of the chair is required to count courses not listed here.