

Chemistry & Biochemistry PhD Degree Requirements

	Biochemistry/Molecular Biophysics	Computational Chemistry	Materials Chemistry	Organic/Organometallic/Inorganic Chemistry	Physics Chemistry
THREE CORE COURSES	QSB 202 <i>Biochemistry</i> OR QSB 200 <i>Molecular & Cell Biology</i> <u>CHOOSE ONE:</u> CHEM 202 <i>Bioorganic Chemistry</i> CHEM 205 <i>Principles of NMR Spectroscopy</i> BIOE 205/CHEM 206 <i>Molecular & Cell Biophysics</i> CHEM 214 <i>Statistical Thermodynamics</i> BIOE 215/CHEM 216 <i>Biological Imaging & Spectroscopy</i> <u>CHOOSE ONE:</u> CHEM 260 <i>Introduction to Scientific Computing</i> CHEM 281 <i>Introduction to Molecular Dynamics</i> QSB 282 <i>Bioinformatics</i> PHYS 230 <i>Computation & Modeling for Biological Sciences</i>	CHEM 212 <i>Quantum Chemistry</i> CHEM 214 <i>Statistical Thermodynamics</i> CHEM 281 <i>Introduction to Molecular Dynamics</i> OR CHEM 225 <i>Molecular Electronic Structure</i>	CHEM 214 <i>Statistical Thermodynamics</i> <u>CHOOSE TWO:</u> CHEM 240 <i>Nanoscience</i> CHEM 250 <i>Chemistry of Surfaces & Interfaces</i> CHEM 2XX <i>Supramolecular Materials Chemistry</i> MBSE 210 <i>Structure & Properties of Materials</i> MBSE 211 <i>Materials Properties</i> MBSE 224 <i>Polymeric Materials</i> PHYS 209 <i>Soft Matter Physics</i> PHYS 241 <i>Condensed Matter Physics</i>	<u>CHOOSE THREE:</u> CHEM 200 <i>Advanced Organic Synthesis</i> CHEM 201 <i>Organic & Organometallic Reaction Mechanisms</i> CHEM 210 <i>Reactions & Reactivity of Organometallic Chemistry</i> CHEM 220 <i>Advanced Inorganic Chemistry</i>	<u>CHOOSE THREE:</u> CHEM 212 <i>Quantum Chemistry</i> CHEM 214 <i>Statistical Thermodynamics</i> CHEM 215 <i>Chemical Kinetics</i> CHEM 231 <i>Molecular Spectroscopy</i>
ELECTIVES	One Grad Course Elective *Numbered 2xx, with at least 3 units				
ETHICS REQUIREMENT	Course Addressing Scientific Ethics QSB 294 (1 unit)				
SEMINARS	Four Semesters of CHEM 291 (1 unit each) Chemistry Seminars				
RESEARCH	Each Semester CHEM 295 (1-12 units) Graduate Research				
ADDITIONAL REQUIREMENTS	Select Faculty Advisor Assemble Faculty Advisory Committee & Have Annual Committee Meetings Pass Proficiency Exam Pass Qualifying Exam & Advance to Candidacy At Least One Semester TA Assignment Present Annual Open Technical Seminar PhD Final Exam (Dissertation Defense) Submit Dissertation Manuscript				