

## Chemistry & Biochemistry PhD Degree Requirements

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