

**Doctoral Program in Chemical and Biological Sciences**  
**SUGGESTED COURSEWORK BASED ON RESEARCH INTERESTS**

<b>Biochemistry</b>	<b>Cell Biology</b>	<b>Chemical Biology</b>	<b>Chemistry</b>	<b>Computational Biology/Bioinformatics</b>	<b>Genetics/Functional Genomics</b>
<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Molecular Biology</li> <li>• Genetics and Genomics</li> <li>• Cell Biology</li> <li>• Signal Transduction</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Molecular Medicine</li> <li>• Protein Folding in the Cell</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Cell Biology</li> <li>• Molecular Biology</li> <li>• Immunology</li> <li>• Structural Biology</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Fundamentals of Neuroscience</li> <li>• Molecular Medicine</li> <li>• Virology</li> <li>• Protein Folding in the Cell</li> <li>• Genetics and Genomics</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Chemical Biology I</li> <li>• Chemical Biology II</li> <li>• Modern Organic Synthesis</li> <li>• Cell Biology</li> <li>• Biophysics</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Molecular Medicine</li> <li>• Immunology</li> <li>• Heterocyclic Chemistry</li> <li>• Structural Biology and Biophysics</li> <li>• Medicinal Chemistry</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Modern Organic Synthesis</li> <li>• Classics in Total Synthesis</li> <li>• Chemical Biology I</li> <li>• Chemical Biology II</li> <li>• Physical Organic Chemistry – Kinetics</li> <li>• Physical Organic Chemistry – Bonding and Reactivity</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Spectroscopy</li> <li>• Heterocyclic Chemistry</li> <li>• Organometallic Chemistry</li> <li>• Natural Product Biosynthesis and Engineering</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Fundamentals of Scientific Computing</li> <li>• Applied Bioinformatics and Computational Biology</li> <li>• Genetics and Genomics</li> <li>• Introduction to Biostatistics</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Business of Biotechnology</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Genetics and Genomics</li> <li>• Fundamentals of Scientific Computing</li> <li>• Applied Bioinformatics and Computational Biology</li> <li>• Molecular Medicine</li> <li>• Classics in Total Synthesis</li> <li>• Cancer Biology</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Molecular Biology</li> <li>• Cell Biology</li> <li>• Fundamentals of Neuroscience</li> <li>• Business of Biotechnology</li> <li>• Neurobiology of Alcohol and Drug Addiction</li> </ul>
<b>Immunology/ Microbiology</b>	<b>Molecular Biology</b>	<b>Molecular Medicine</b>	<b>Neuroscience</b>	<b>Structural Biology/Biophysics</b>	
<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Introduction to Immunology and Microbial Sciences</li> <li>• Virology</li> <li>• Molecular Biology</li> <li>• Immunology</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Structural Biology and Biophysics</li> <li>• Molecular Medicine</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Molecular Biology</li> <li>• Structural Biology and Biophysics</li> <li>• Cell Biology</li> <li>• Cancer Biology</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Genetics and Genomics</li> <li>• Fundamentals of Neuroscience</li> <li>• Molecular Medicine</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Molecular Medicine</li> <li>• Signal Transduction</li> <li>• Molecular Biology</li> <li>• Chemical Biology I</li> <li>• Drug Discovery and Development</li> <li>• Drugs of Today</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Structural Biology and Biophysics</li> <li>• Cell Biology</li> <li>• Genetics and Genomics</li> <li>• Fundamentals of Neuroscience</li> <li>• Bacteria and Antibiotics</li> <li>• Medicinal Chemistry</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Fundamentals of Neuroscience</li> <li>• Neurobiology of Alcohol and Drug Addiction</li> <li>• Concepts of Learning and Memory</li> <li>• Neurobiology of Disease</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Molecular Biology</li> <li>• Structural Biology and Biophysics</li> <li>• Current Topics in Sensory Neuroscience</li> <li>• Molecular Medicine</li> <li>• Genetics and Genomics</li> <li>• Fundamentals of Scientific Computing</li> <li>• Applied Bioinformatics and Computational Biology</li> <li>• Cell Biology</li> </ul>	<p><b>Core</b></p> <ul style="list-style-type: none"> <li>• Structural Biology and Biophysics I</li> <li>• Structural Biology and Biophysics II</li> <li>• Molecular Biology</li> <li>• Cell Biology</li> <li>• Fundamentals of Scientific Computing</li> <li>• Applied Bioinformatics and Computational Biology</li> </ul> <p><b>Electives</b></p> <ul style="list-style-type: none"> <li>• Introduction of Biostatistics</li> <li>• Molecular Medicine</li> <li>• Protein Folding in the Cell</li> <li>• X-ray Crystallography</li> <li>• Spectroscopy</li> <li>• Introduction to Immunology and Microbial Sciences</li> <li>• Virology</li> </ul>	