

**West Linn–Wilsonville School District**  
**Science Department – Course Statement**

<b><u>Course Title: Organic and Biochemistry</u></b>	
<b>Length of Course:</b> Year <b>Number of Credits:</b> 2 <b>Grade Level:</b> 11, 12 <b>Prerequisites:</b> Chemistry <b>CIM Work Samples Offered in Course:</b> None	<b>Date of Description/Revision:</b> 2002
<b>Course Overview</b>	
<p>Biochemistry is a course that investigates the chemistry of life. The emphasis of study and investigation will be placed on the following topics: 1) review of organic chemistry, 2) molecular components of cells – amino acids, proteins, enzymes, sugars, lipids, nucleic acids, vitamins, 3) catabolism – metabolic pathways, 4) cell function and control – biosynthesis, transport, hormones, and 5) replication – DNA/RNA. This course may be of special interest to those students considering a career relating to biology or medicine. Health field careers will be addressed.</p>	
<b>Essential Questions</b>	<b>Concepts providing focus for student learning</b>
<ul style="list-style-type: none"> <li>• What is the relationship between chemistry and life?</li> <li>• What chemical systems are essential to life?</li> <li>• How will our knowledge of biochemistry affect our lives now and in the future?</li> </ul>	
<b>Proficiency Statements</b>	
<p>Upon completion of course, students will be able to:</p> <ul style="list-style-type: none"> <li>• Identify organic families in order to write appropriate names and structures for organic compounds.</li> <li>• Understand basic organic chemical reactions.</li> <li>• Identify biochemical families.</li> <li>• Predict chemical activity based on chemical structure.</li> <li>• Learn the chemical nature of the cell, concentrating on: carbohydrates, lipids, amino acids and proteins, and nucleic acids.</li> <li>• Understand basic metabolic processes: anabolism and catabolism.</li> <li>• Understand the nature and importance of genetic information.</li> <li>• Apply biochemical principles to nutrition, digestion, circulation, the nervous system, and the immune system.</li> <li>• Be aware of medical applications of biochemistry.</li> <li>• Be aware of career possibilities in the area of health and medicine.</li> </ul>	

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<b>General Course Topics/Units &amp; Timeframes</b>	
<u>Semester 1</u> A. Review of General Chemistry 5 weeks B. Organic Chemistry 31 weeks	
<u>Semester 2</u> A. Biochemistry 33 weeks C. Health Application and Body Systems 3 weeks	
<b>Resources</b>	
<ul style="list-style-type: none"><li>• Text: <i>Introduction to General, Organic &amp; Biochemistry, 6<sup>th</sup> Edition</i>, Harcourt College Publishers, 2001.</li><li>• Video Series: Howard Hughes Medical Institute</li></ul>	