

West Linn–Wilsonville School District

Science Department – Course Statement

<u>Course Title: Organic and Biochemistry</u>	
Length of Course:	Year
Number of Credits:	2
Grade Level:	11, 12
Prerequisites:	Chemistry
CIM Work Samples	
Offered in Course:	None
Date of Description/Revision: 2002	
Course Overview	
<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>	
Essential Questions	Concepts providing focus for student learning
<ul style="list-style-type: none"> • What is the relationship between chemistry and life? • What chemical systems are essential to life? • How will our knowledge of biochemistry affect our lives now and in the future? 	
Proficiency Statements	
<p>Upon completion of course, students will be able to:</p> <ul style="list-style-type: none"> • Identify organic families in order to write appropriate names and structures for organic compounds. • Understand basic organic chemical reactions. • Identify biochemical families. • Predict chemical activity based on chemical structure. • Learn the chemical nature of the cell, concentrating on: carbohydrates, lipids, amino acids and proteins, and nucleic acids. • Understand basic metabolic processes: anabolism and catabolism. • Understand the nature and importance of genetic information. • Apply biochemical principles to nutrition, digestion, circulation, the nervous system, and the immune system. • Be aware of medical applications of biochemistry. • Be aware of career possibilities in the area of health and medicine. 	

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