

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

<b><u>Course Title: Forensic Science</u></b>	
<b>Length of Course:</b>	Semester
<b>Number of Credits:</b>	1
<b>Grade Level:</b>	10, 11, 12
<b>Prerequisites:</b>	None
<b>CIM Work Samples</b>	
<b>Offered in Course:</b>	Determined by student needs
<b>Date of Description/Revision: 2002</b>	

<b>Course Overview</b>	
------------------------	--

This is a course in crime scene investigation. Students will explore DNA fingerprinting, analysis of blood type and splatter, fingerprint analysis, hair analysis, narcotics and insects from crime scenes. Students will develop skills in lab techniques and methods, critical thinking, and research.

<b>Essential Questions</b>	<b>Concepts providing focus for student learning</b>
----------------------------	--

- How does science ask and answer questions?
- What are the mechanisms of DNA that cause change and stability in living systems?
- How do humans and technology influence change and stability in living systems?
- How is science used to ask and answer questions to help to solve criminal cases?
- In what ways are genetic and forensic technology interconnected with society?

<b>Proficiency Statements</b>	
-------------------------------	--

- Upon completion of course, students will be able to:
- Review the basic genetic concepts of inheritance.
  - Complete advanced genetics problems dealing with epistasis, multiple alleles, polygenic inheritance, and multifactorial disorders.
  - Explain the causes and implications of various genetic diseases caused by gene and chromosome errors.
  - Apply the skills necessary to carry out and analyze electrophoresis experiments for restriction digests and restriction fragment length polymorphisms.
  - Apply the skills necessary to carry out and genetic transformation experiments and understand their implications on the creation of genetically modified organisms.
  - Address issues as to the future of genetics in our society.
  - Secure and analyze a simulated crime scene.
  - Apply the skills necessary to collect and analyze physical evidence such as fingerprints, glass samples and soil samples.

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

- Apply the skills necessary to collect and analyze organic evidence such as hair, insect, fiber and paint samples.
- Explain the analysis and importance of forensic toxicology.
- Explain the analysis and importance of forensic serology.
- Explain the analysis and importance of DNA and analyze DNA samples using gel electrophoresis.
- Explain the analysis of firearm, tool marks and other impression evidence.

<b>General Course Topics/Units &amp; Timeframes</b>	
<ul style="list-style-type: none"> <li>A. Basic genetics</li> <li>B. Advanced Problems in Genetics</li> <li>C. Genetic Diseases</li> <li>D. Electrophoresis</li> <li>E. Genetic Engineering</li> <li>F. The future of Genetics</li> <li>G. Introduction to Forensic science</li> <li>H. Physical Evidence and Fingerprints</li> <li>I. Physical Properties – Glass and Soil</li> <li>J. Organic Analysis and Inorganic Analysis</li> <li>K. The Microscope - Hair, Fibers and Paint</li> <li>L. Drugs and Forensic Toxicology</li> <li>M. Forensic Serology</li> <li>N. DNA</li> <li>O. Firearms, Tool Marks and Other Impressions</li> </ul>	
<b>Resources</b>	
<ul style="list-style-type: none"> <li>• Text: <i>Concepts of Genetics, 6th Edition</i>, Prentice Hall/Addison Wesley, 2000</li> <li>• Text: <i>Criminalistics, 7<sup>th</sup> Edition</i>, Prentice Hall/Addison Wesley, 2001</li> </ul>	