

## OUTCOMES BASED LEARNING MATRIX

**Course: BIOL 137 Human Genetics Lab**

**Department: Biology**

### Course Description

This course will include activities related to Human Reproductive Anatomy, transmission genetics and molecular genetics. An emphasis will be placed on understanding the scientific process. Laboratory: 2 hours Pre/Corequisite: Human Genetics (BIOL136)

The individual outcomes listed in the first column answer the question: **What must the learner know and be able to do at the end of the course?** Items in the third column should answer the question: **How do we know?** The second column is where teachers can be most creative; it's for pedagogy. Each rectangle in column one contains just one outcome; the corresponding rectangles in columns two and three, however, may contain more than one item.

The code indicates the core competencies being strengthened by the outcomes activities and the assessment tools. Critical Thinking (CT); technology skills (TS); oral communications (OC); quantitative skills (QS); reading (R); writing (W).

<b>COURSE OUTCOMES</b>	<b>OUTCOMES ACTIVITIES</b>	<b>ASSESSMENT TOOLS</b>
<p><b>Scientific Method</b> Describe the steps of the scientific method and apply in solving problems related to human genetics. Conduct laboratory experiments related to current topics in human genetics using the scientific method in order to understand scientific .</p>	<ul style="list-style-type: none"> <li>• Read text (CT, R)</li> <li>• Attend lecture/discussion (W,OC,CT)</li> <li>• Conduct experiments emphasizing steps of the scientific method (R,W,CT,QS,TS)</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz (CT,W,R)</li> <li>• Test (CT,W,R)</li> <li>• Lab reports (CT,W,R,QS)</li> </ul>
<p><b>Laboratory Safety</b> Work safely in the laboratory and follow simple laboratory protocols in order to work cooperatively to complete laboratory exercises.</p>	<ul style="list-style-type: none"> <li>• Read and sign safety sheet (R,CT)</li> <li>• Follow directions carefully (R,CT)</li> <li>• Follow proper procedures for disposal of waste products (R,CT)</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz (CT,W,R)</li> <li>• Test (CT,W,R)</li> <li>• Observe students' work in lab (CT)</li> </ul>
<p><b>Laboratory Skills</b></p>	<ul style="list-style-type: none"> <li>• Attend lecture/discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz (CT,W,R)</li> </ul>

<p>Follow directions carefully to complete laboratory exercises in order to work safely in the laboratory setting.          Perform simple mathematical calculations, construct graphs and tables, and analyze data as appropriate to draw conclusions.          Use the compound microscope as an observational tool in order to look at slides.          Develop basic lab skills such as use of pipettes and micropipettes, wet mount preparations, ELIZA, electrophoresis.</p>	<p>(W,OC,CT)</p> <ul style="list-style-type: none"> <li>• Complete laboratory exercises independently (R,W,CT,QS,TS)</li> <li>• Use math in laboratory exercises (CT, R, QS)</li> <li>• Construct graphs and tables in laboratory exercises (R, W, CT, QS)</li> <li>• Use the compound microscope in several laboratory exercises (R,CT, QS, TS)</li> <li>• Use basic laboratory techniques in several lab exercises as appropriate (R,CT, QS, TS)</li> </ul>	<ul style="list-style-type: none"> <li>• Test (CT,W,R)</li> <li>• Observe students' work in lab (CT)</li> <li>• Grade lab exercises (R,W,CT,QS,TS)</li> </ul>
<p><b>Human Genetics</b>          Investigate selected topics in human genetics.</p>	<ul style="list-style-type: none"> <li>• Attend lecture/discussion (W,OC,CT)</li> <li>• Complete laboratory exercises (R,W,CT,QS,TS)</li> <li>• Research a human genetic disorder and apply knowledge gained in course to describe and explain the general characteristics of the disorder, the genetic cause, pattern of inheritance, physical effects, and treatment options</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz (CT,W,R)</li> <li>• Test (CT,W,R)</li> <li>• Grade lab exercises (R,W,CT,QS,TS)</li> <li>• Poster of research (R, W, CT)</li> <li>• Presentation of poster research (CT, OS)</li> </ul>
<p>Strengthen Core Competencies in order to increase success in this and other courses and in the workplace.</p>	<p>Referenced above</p>	<p>Referenced above</p>