

## Clovis Community College

### Core Competencies Assessment 2012-2013—Area III: Laboratory Science

**Class: Biology 113 – Biology for General Education**

**Faculty: Todd Kuykendall for Anne Luna and Lana Powell**

**Common Core No.: NMCCN BIOL 1114**

<u>Competencies</u> (Learning Outcomes Being Measured)	<u>Assessment Procedures</u> (Process/Instrument named or described – rubric attached)	<u>Assessment Results</u>	<u>How Results Will Be Used To Make Improvements</u>	<u>(Optional)</u> Recommendations/Goals/ Priorities
<p><b>1. Students will describe the process of scientific inquiry.</b> Students should:</p> <ul style="list-style-type: none"> <li>a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition.</li> <li>b. Students should value science as a way to develop reliable knowledge about the world.</li> </ul>	<p>Students work through problems via the Scientific Method and correlate historical scientific investigations to important concepts in Biology (pre- and post-test taken by 72 students in the spring semester)</p>	<p>In-class student work showed improvement during the course in their in-class exercises, problem sets, lab activities, and current biology topics.</p> <p>On the exit assessment test, students results were as follows:</p> <p>Comp. 1 = 90% (slightly down from 93% last year)</p>	<p>We used a minimum of 70% for each competency as the standard that we aspired to reach and we exceeded that goal in each of the five competencies. All of the competencies surpassed the minimum and we feel quite confident that these competencies are being taught to the students. As of now, no recommendations are being made for improvement as of this time.</p>	
<p><b>2. Students will solve problems scientifically.</b> Students should:</p> <ul style="list-style-type: none"> <li>a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods.</li> <li>b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).</li> </ul>	<p>The scientific method is used by students to solve problems and make observations using tools such as microphones, electronic scales, Punnett Squares, hypothesis are constructed and tested through lab reports , problem sets, quizzes and lecture exams.</p>	<p>Comp. 2 = 89% correct (up from 87% last year)</p>		

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<p><b>3. Students will communicate scientific information.</b>            Students should:            Communicate effectively about science (e.g., write lab reports in standard format and explain basic scientific concepts, procedures, and results using written, oral, and graphic presentation techniques.)</p>	<p>Students communicate effectively about science through lab reports , Biology in the news (current events) and in-class presentations</p>	<p>Comp. 3 = 87% (down from 97% last year)</p>		
<p><b>4. Students will apply quantitative analysis to scientific problems.</b>            Students should:            a. Select and perform appropriate quantitative analyses of scientific observations.            b. Show familiarity with the metric system, use a calculator to perform appropriate mathematical operations, and present results in tables and graphs.</p>	<p>Students perform calculations involving metrics, plant growth, energy, populations, and genetics through lab reports , problem sets, quizzes and lecture exams.</p>	<p>Comp 4 = 87% (up from 83% last year)</p>		

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<p><b>5. Students will apply scientific thinking to real world problems.</b>                  Students should:                  a. Critically evaluate scientific reports or accounts presented in the popular media.                  b. Understand the basic scientific facts related to important contemporary issues (e.g., global warming, stem cell research, cosmology), and ask informed questions about those issues.</p> <p style="text-align: right;">End – Laboratory Science</p>	<p>Students critically evaluate current developments in biology, incorporating basic scientific facts to make their evaluation through Biology in the news, in-class presentations and class discussions</p> <p>A final assessment quiz that has specific ties to each of the five competencies is given at the end of the semester</p>	<p>Comp. 5 = 92% correct (down from 97% last year)</p>		
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**Faculty Member Completing Assessment:** Todd Kuykendall June 2013  
*Name* *Date*

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## Clovis Community College

### Core Competencies Assessment 2012-2013—Area III: Laboratory Science

**Class: Chemistry 113 – Chemistry for General Education**

**Faculty: Michelle Hughes**

**Common Core No.: NMCCN CHEM 1114**

<u>Competencies</u> (Learning Outcomes Being Measured)	<u>Assessment Procedures</u> (Process/Instrument named or described – rubric attached)	<u>Assessment Results</u>	<u>How Results Will Be Used To Make Improvements</u>	<u>(Optional)</u> Recommendations/Goals/ Priorities
<p>Students were assessed in regard to the following objectives. By the end of the course, the student should be able to achieve a minimum of 70% proficiency in the following areas:</p> <ol style="list-style-type: none"> <li>1. Develop an understanding of the history of chemistry and the development of chemistry as a science.</li> <li>2. Classify matter as an element, compound, or mixture.</li> <li>3. Describe the arrangement of basic subatomic particles and extend that information to understand differences in mass, stability, and reactivity of elements.</li> <li>4. Use the Periodic Table of Elements and distinguish between metals, non-metals, and metalloids as well as outer shell (valence) electron arrangement.</li> <li>5. Relate quantitative aspects of reaction and stoichiometry.</li> </ol>	<p>One 16 week CHEM 113 course was assessed during the Spring 2013 semester. Student knowledge was assessed through the comprehensive final which consisted of 100 multiple choice questions. Students were assessed using 25 of these questions.</p>	<p><b>Spring 13</b></p> <ul style="list-style-type: none"> <li>• Objective 1 = 64.3%</li> <li>• Objective 2 = 89.3%</li> <li>• Objective 3 = 75.0%</li> <li>• Objective 4 = 89.3%</li> <li>• Objective 5 = 92.9%</li> <li>• Objective 6 = 54.3%</li> </ul>	<p>With the exception of Objectives 1 and 6 in both classes, the objective averages were above or at least the 70% proficiency mark.</p> <p>I will work to ensure that the topics covered in the final exam are thoroughly discussed in lecture next semester. I will incorporate more diagrams and explanations and ensure students thoroughly understand the material being presented.</p>	

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6. Describe three broad categories of biochemicals: carbohydrates, lipids, and proteins.				

Faculty Member Completing Assessment: Michelle Hughes \_\_\_\_\_ June 2013 \_\_\_\_\_  
*Name* *Date*

## Clovis Community College

### Core Competencies Assessment 2012-2013—Area III: Laboratory Science

**Class: Geology 113 – Physical Geology**

**Faculty: Todd Kuykendall for Harry Pomeroy**

**Common Core No.: NMCCN GEOL 114**

<u>Competencies</u> (Learning Outcomes Being Measured)	<u>Assessment Procedures</u> (Process/Instrument named or described – rubric attached)	<u>Assessment Results</u>	<u>How Results Will Be Used To Make Improvements</u>	<u>(Optional)</u> Recommendations/Goals/ Priorities
<p><b>1. Students will describe the process of scientific inquiry.</b> Students should:</p> <ul style="list-style-type: none"> <li>a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition.</li> <li>b. Students should value science as a way to develop reliable knowledge about the world.</li> </ul>	<p>Students will work through problem using the Scientific Method, specific historical examples will also be investigated that correlate to important concepts in Geology (e.g. – theories of geologic phenomenon, origin of the Earth) – In-class exercises, quizzes, lecture exams, labs</p>	<p>In-class student work showed improvement during the course in their in-class exercises, problem sets, lab activities, and discussion of current events in Geology as indicated by every one of the competencies meeting our desired minimum score of 70%.</p> <p>On the exit assessment test, given to 13 students during the fall and 14 students during the spring, results were as follows:</p> <p><b>Fall</b> Comp. 1 = 85%</p> <p><b>Spring</b> Comp. 1 = 79%</p>	<p>We use a minimum of 70% correct for each competency as the standard that we aspire to reach. Not all competences reached the benchmark during the 2012-2013 academic year (Comp 2 and 5 during the spring). Part of this was due to low participation rates in these courses and overall our science courses saw a decrease in assessment results. One of the main goals of the 2013-2014 academic year will be to overhaul our assessment approach and make sure the assessment method is adequately assessing these competencies.</p>	

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<p><b>2. Students will solve problems scientifically.</b>                      Students should:</p> <ul style="list-style-type: none"> <li>a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods.</li> <li>b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).</li> </ul>	<p>The scientific method will be used to solve problems and problems will be solved in the following areas:                      present is the key to the past exercises, geologic structure formation – lab reports, problem sets, quizzes, lecture exams</p>	<p><b>Fall</b>                      Comp. 2 = 77%  <b>Spring</b>                      Comp. 2 = 58%</p>		
<p><b>3. Students will communicate scientific information.</b>                      Students should:                      Communicate effectively about science (e.g., write lab reports in standard format and explain basic scientific concepts, procedures, and results using written, oral, and graphic presentation techniques.)</p>	<p>Students will submit lab reports and discuss current topics in Geology – reports and presentations on geological topics such as local topography, hydrology, volcano formation, tsunamis</p>	<p><b>Fall</b>                      Comp. 3 = 70%  <b>Spring</b>                      Comp. 3 = 72%</p>		

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