

Course Competencies Template - Form 112

GENERAL INFORMATION			
Name: Dr. Jose Diaz	Phone #: 7-3360		
Course Prefix/Number: PSC 1191	Course Title: Physical Science Lab Fundamentals		
Number of Credits: 1			
Degree Type	<input type="checkbox"/> B.A. <input type="checkbox"/> B.S. <input type="checkbox"/> B.A.S <input checked="" type="checkbox"/> A.A. <input checked="" type="checkbox"/> A.S. <input type="checkbox"/> A.A.S. <input type="checkbox"/> C.C.C. <input type="checkbox"/> A.T.C. <input type="checkbox"/> V.C.C		
Date Submitted/Revised: 9/21/07	Effective Year/Term: 2007-2		
<input checked="" type="checkbox"/> New Course Competency <input type="checkbox"/> Revised Course Competency			
Course to be designated as a General Education course (part of the 36 hours of A.A. Gen. Ed. coursework): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
The above course links to the following General Education Outcomes: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking & Scientific Reasoning <input type="checkbox"/> Information Literacy <input type="checkbox"/> Cultural / Global Perspective </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Social Responsibility <input type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input checked="" type="checkbox"/> Natural Systems/Environmental Responsibility </td> </tr> </table>		<input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking & Scientific Reasoning <input type="checkbox"/> Information Literacy <input type="checkbox"/> Cultural / Global Perspective	<input type="checkbox"/> Social Responsibility <input type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input checked="" type="checkbox"/> Natural Systems/Environmental Responsibility
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Course Description (limit to 50 words or less, must correspond with course description on Form 102): Students will develop observation, measurement, analysis, and presentation skills using hands-on collaborative physics and chemistry activities. These skills will enhance future performance in Science, Technology, Engineering and Mathematics (STEM) courses and careers. Students will use current technology as well as critical thinking.			
Prerequisite(s):	Corequisite(s):		

Course Competencies: (for further instruction/guidelines go to: <http://www.mdc.edu/asa/curriculum.asp>)

Competency 1: Students will demonstrate scientific observation skills by:

1. Obtaining quantitative and qualitative data from experimental phenomena observed via media, instructor experiment, laboratory activity, or direct field observation.
2. Predicting which variables affect the outcome of a given experiment.
3. Predicting from observations, which variables affect the outcome of an experiment.

Competency 2: Students will demonstrate scientific measurement skills by:

1. Using laboratory equipment to make length, mass, volume, and time measurements
2. Using laboratory equipment to make measurement of chemical quantities such as pH.
3. Determining the number of significant figures appropriate to specific measurements
4. Associating the appropriate units with specific measurements

Revision Date: _____

Approved By Academic Dean Date: _____

Reviewed By Director of Academic Programs Date: _____

Competency 3: Students will apply knowledge of technological skills by:

1. Using concept mapping software to create concepts that organize and clarify the theoretical connections underlying their laboratory activities.
2. Using computerized graphing and analysis of laboratory data.
3. Preparing oral and Powerpoint-style presentations of performed lab activities.

Competency 4: Students will demonstrate scientific presentation skills by:

1. Writing laboratory reports in proper format in which the procedure followed is described and the experimental data, analysis, results, and conclusions are clearly presented.
2. Creating technology enhanced presentations as part of lab reports.
4. Creating and delivering oral and Powerpoint-style presentations to peers and faculty

Competency 5: Students will demonstrate scientific reasoning skills by:

1. Identifying and classifying the relevant variables in laboratory experiment
2. Justifying the conclusions drawn from laboratory results
3. Designing an experimental procedure, the results of which will determine the answer to a question or hypothesis posed in class

Competency 6: Students will demonstrate the ability to distinguish between physical and chemical properties by:

1. Performing chemistry demonstrations or experiments which involve physical and chemical changes and explaining how these demonstrations relate to physical and chemical properties
2. Creating a concept map which illustrates the distinction between physical and chemical properties

Competency 7: Students will demonstrate the ability to distinguish between pure substances and mixtures by:

1. Performing chemistry demonstrations or experiments which involve the differentiation between pure substances and mixtures and explaining how these demonstrations relate to physical and chemical properties
2. Creating a concept map which illustrates the distinction between pure substances and mixtures and which methods separate their components

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3. Differentiating which ordinary substances are pure substances and which are mixtures

Competency 8: Students will demonstrate understanding of motion and energy by:

1. Using video analysis to determine the position of moving objects and to calculate their position and speed
2. Calculating kinetic and potential energy from location and speed values.
3. Evaluating the degree to which mechanical energy is conserved during the motion of an object

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