

New Mexico State University Core Competencies Report

Date Submitted: November 2, 2011

Attachments (please check all that apply):

Attached	AREA	CONTACT
X	Area 1 – Communications	Shelly Stovall
X	Area II Math—Algebra	Shelly Stovall
	Area II Math—Calculus	Shelly Stovall
X	Area II Math—Other Math	Shelly Stovall
	Area III Laboratory Science	Shelly Stovall
X	Area IV Social/Behavioral Sciences	Shelly Stovall
X	Area V Humanities/Fine Arts	Shelly Stovall

This report fulfills reporting requirements for the New Mexico Higher Education Dept.

Attested:


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Institutional URL for HED Core Competencies Assessment Reports:

<http://assessment.nmsu.edu/ge/state-common-core-assessment>

Core Competencies Assessment 2010-11: Area I Courses

New Mexico State University - Las Cruces

Communications Competencies

<u>State 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>
1. Students will analyze and evaluate oral and written communication in terms of situation, audience, purpose, aesthetics, and diverse points of view.				
2. Students will express a primary purpose in a compelling statement and order supporting points logically and convincingly.	<p>FF - 113 students from multiple courses were presented with a visual image of victims (primarily African Americans) from the 1937 Louisville flood in a food line, standing in front of billboard of the ‘American Way’ featuring a wealthy white family. Students were provided historical information about the event and were then asked to respond to three writing prompts. Student responses were used to determine students’ ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.</p> <p>TT - 76 students from multiple courses were presented with background information and two opposing arguments concerning the controversial revision of Mark Twain’s “Adventures of Huckleberry Finn.” They were then asked to write a short position paper advocating for one of the positions. Student responses were used to determine students’ ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the appropriateness of the student assignment, and the validity of the rubric and scoring process. It is parenthetically noted that preliminary student scores in the pilot study indicate that expressing a primary purpose and ordering supporting points were the strongest areas for our students.</p>	<p>It was determined that with some minor tweaking, both the assignments and the rubrics could and should be used for the full implementation of the assessment. It was also determined that with increased norming of use of the instrument, paired faculty scoring of student products could be a reliable method for assessing student learning. Further plans have been made for full implementation of the assessment in the spring, including increasing the number of faculty scorers.</p>	
3. Students will use effective rhetorical strategies to persuade, inform, and engage.	<p>TT - 76 students from multiple courses were presented with background information and two opposing arguments concerning the controversial revision of Mark Twain’s “Adventures of Huckleberry Finn.” They were then asked to write a short position paper</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the</p>	<p>It was determined that with some minor tweaking, the assignments and the rubric could and should be used for the full implementation</p>	

	advocating for one of the positions. Student responses were used to determine students' ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.	appropriateness of the student assignment, and the validity of the rubric and scoring process. It is parenthetically noted that preliminary student scores in the pilot study indicate that using effective rhetorical strategies was one of the strongest areas for our students.	of the assessment. It was also determined that with increased norming of use of the instrument, paired faculty scoring of student products was a reliable method for assessing student learning. Further plans have been made for the full implementation in the spring, including increasing the number of faculty scorers.	
4. Students will employ writing and/or speaking processes such as planning, collaborating, organizing, composing, revising, and editing to create presentations using correct diction, syntax, grammar, and mechanics.				
5. Students will integrate research correctly and ethically from credible sources to support the primary purpose of a communication.				
6. Students will engage in reasoned civic discourse while recognizing the distinctions among opinions, facts, and inferences.				

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Core Competencies Assessment 2010-11: Area II Courses

New Mexico State University - Las Cruces

Mathematics – Algebra Competencies

<u>State 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>
1. Students will graph functions				
2. Students will solve various kinds of equations.	In MATH 121G, two final exam problems were considered, addressing the two core competencies, <i>solve various kinds of equations</i> and <i>perform operations on functions</i> . Problem 1 on the Math 121G final asked the student to find equations of (i) a line that is vertical and passes through a given point and (ii) a line that is perpendicular to a given line and passes through a given point. Problem 2 asked the student to find the linear function that converts from degrees Kelvin to degrees Fahrenheit, given the data points for the freezing temperature and boiling temperature of water in each scale. Instructors graded the papers for one of the two problems for the students their sections.	The data show that students did better on Problem 2, in which students were asked to convert information from a physical context into a mathematical model, than they did on Problem 1, where they were asked to manipulate information already in a mathematical format. This might be interpreted as suggesting that the students were more comfortable working with concrete information than with slightly abstract information.	MATH 121G is a diverse course, not only in terms of students, but in terms of instructors as well. It is likely that students would benefit from more motivation for why being able to find equations of lines from different types of data is needed, and to see examples of where it is used again and again throughout the semester. As a follow-up, we plan to ask questions on the Final Exam in MATH 121G at the end of the Spring semester similar to those on the diagnostic quiz in MATH 142G and MATH 190G to help us determine whether the lack of competency displayed on the diagnostic quiz was due more to students never having learned the technique or more simply to students having failed to remember a technique previously learned. Making this distinction will help us to determine what pedagogical changes might be in order.	
3. Students will demonstrate the use of function notation and perform operations on functions.	Same as 2 above.	Same as 2 above.		
4. Students will model/solve real-world problems.				

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Core Competencies Assessment 2010-11: Area II Courses, cont.

New Mexico State University - Las Cruces

Mathematics – Other College-Level Mathematics Competencies

<u>State 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>
<p>1. Students will display, analyze, and interpret data.</p> <p>2. Students will demonstrate knowledge of problem-solving strategies.</p>	<p>Because linear equations are fundamental and pervasive in elementary applications of mathematics, we decided to begin by pre-testing, giving short quizzes in each of the courses MATH 142G, Business Calculus, MATH 190G, Precalculus, and MATH 191G, Calculus I. For MATH 142G and MATH 190G taught in the spring semester, the vast majority of students will have taken MATH 121G, College Algebra, the previous fall. For MATH 191G taught in the spring semester, the vast majority of students will have taken MATH 190G, Precalculus, in the previous fall.</p> <p>For MATH 142G and MATH 190G, the same quiz was given to each student in each section of the two courses. There were two questions on the quiz. The first asked the student to find the equation of a horizontal line passing through a given point (a,b). The solution has the form $y = b$. The second problem asked the student to find the equation of the line parallel to a given line of the form $y = mx + b$ passing through a given point. The student is intended to recognize that he or she is being asked to apply the point-slope form of the equation of a line.</p> <p>Each student paper was rated 0, 1, or 2: 0 - student shows little or no ability to work a problem</p>	<p>Data from each of the sections of MATH 190G indicates that results were fairly consistent over different sections of the course. That is, instructor bias appears to have had little effect on the overall results. Data from MATH 142G indicates that, while the results of the two instructors were consistent with one another, it is possible that the 142G instructors graded less generously than the 190G instructors, overall. In particular, they may have been less willing to award partial credit. In the MATH 142G and MATH 190G there was some fluctuation in the relative proportions of 0s, 1s and 2s from the different sections, it would be difficult to say this variation was due to variance in instructor's willingness to award partial credit.</p> <p>Spring: For Math 190, both problems required the student to take the inverse function (exponential or logarithm) to reduce to an algebraic equation that can be solved by factoring or another root method. The sinusoidal problem is more geometric while Problem 10 is more analytic. Both problems are much harder than the Math 121G problems. Fewer students</p>	<p>It is difficult to draw actionable conclusions from the given data. Here is a little speculation on why the results are so poor, particularly for MATH 142G. The students in MATH 142G are on a lower mathematical track than the students in MATH 190G. In particular, MATH 142G is a terminal math class for almost every student in the course. As such, the students may not take a diagnostic quiz as seriously as the typical student in MATH190G, who still has to take at least a full year of very challenging Calculus classes after 190G. Even so, the results in MATH 190G are not encouraging. There are two potential reasons for low diagnostic scores in both MATH</p>	

	<p>1 - student shows moderate ability to work a problem, but with some moderate mistakes 2 - student shows good ability to work a problem, with little or no mistakes. For Math 191G, each student in each section was given a quiz having two questions addressing solving linear inequalities. This quiz also addressed the competency but the level of analytical skill required to solve the problems was substantially higher.</p> <p>Each instructor graded papers from his or her section.</p> <p>Spring: Data was collected again in the spring from student work on Final Exams taken at the end of Spring, 2011 in MATH 121G, College Algebra, MATH 190G, Trigonometry and Precalculus, MATH 191G, Calculus and Analytic Geometry I.</p>	<p>were able to solve Problem 10 satisfactorily than Problem 7. However, relative to Math 121G, it appears that more 190G students were able to perform adequately in terms of the problem-solving competency.</p> <p>For Math 191G the problem asks the student to find the critical points, identify intervals on which the function is increasing or decreasing, identify concavity, and sketch the graph of a quintic function. Roughly a third of the students performed at each level indicated by the rubric. The first part of the problem requires simple algebra. That such a large proportion of students could not do this without use of a calculator might indicate that students rely too heavily on a calculator in earlier courses either in high school or at NMSU.</p>	<p>142G and MATH 190G. One possibility is simply that MATH 121G is not preparing students adequately. A second, equally likely possibility is that students learn how to solve equations of lines in MATH 121G, but they do not carry this knowledge forward into the next semester. On a more positive note, the diagnostic quiz results in MATH 191G indicate that students are learning the desired competency and maintaining that knowledge, at least over the winter break.</p>	
<p>3. Students will construct valid mathematical explanations.</p>				
<p>4. Students will display an understanding of the development of mathematics.</p>				
<p>5. Students will demonstrate an appreciation for the extent, application, and beauty of mathematics.</p>				

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Core Competencies Assessment 2010-11: Area IV Courses

New Mexico State University - Las Cruces

Social and Behavioral Sciences Competencies

<u>State 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>
<p>1. Students will identify, describe and explain human behaviors and how they are influenced by social structures, institutions, and processes within the contexts of complex and diverse communities.</p>	<p>TT - 76 students from multiple courses were presented with background information and two opposing arguments concerning the controversial revision of Mark Twain’s “Adventures of Huckleberry Finn.” They were then asked to write a short position paper advocating for one of the positions. Student responses were used to determine students’ ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the appropriateness of the student assignment, and the validity of the rubric and scoring process. It is parenthetically noted that preliminary student scores in the pilot study indicate that awareness of cultural situations was an area in which many of our students struggled.</p>	<p>It was determined that with some minor tweaking, the assignments and the rubric could and should be used for the full implementation of the assessment. It was also determined that with increased norming of use of the instrument, paired faculty scoring of student products was a reliable method for assessing student learning. Further plans have been made for the full implementation in the spring, including increasing the number of faculty scorers.</p>	
<p>2. Students will articulate how beliefs, assumptions, and values are influenced by factors such as politics, geography, economics, culture, biology, history, and social institutions.</p>	<p>TT - 76 students from multiple courses were presented with background information and two opposing arguments concerning the controversial revision of Mark Twain’s “Adventures of Huckleberry Finn.” They were then asked to write a short position paper advocating for one of the positions. Student responses were used to determine students’ ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the appropriateness of the student assignment, and the validity of the rubric and scoring process. It is parenthetically noted that preliminary student scores in the pilot study indicate that awareness of cultural situations was an area in which many of our students struggled.</p>	<p>It was determined that with some minor tweaking, the assignments and the rubric could and should be used for the full implementation of the assessment. It was also determined that with increased norming of use of the instrument, paired faculty scoring of student products was a reliable method for assessing student learning. Further plans have been made for the full implementation in the spring, including increasing the number of faculty scorers.</p>	
<p>3. Students will describe ongoing reciprocal interactions among self, society, and the environment.</p>	<p>FF - 113 students from multiple courses were presented with a visual image of victims (primarily African Americans) from the 1937 Louisville flood in a food line, standing in front of billboard of the ‘American Way’ featuring a wealthy white</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the appropriateness of the student assignment, and</p>	<p>It was determined that with some minor tweaking, the assignments and the rubric could and should be used for the full implementation of the assessment. It was also determined that with increased</p>	

	family. Students were provided historical information about the event and were then asked to respond to three writing prompts. Student responses were used to determine students' ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.	the validity of the rubric and scoring process. It is parenthetically noted that preliminary student scores in the pilot study indicate that awareness of cultural situations was an area in which many of our students struggled.	norming of use of the instrument, paired faculty scoring of student products was a reliable method for assessing student learning. Further plans have been made for the full implementation in the spring, including increasing the number of faculty scorers.	
4. Students will apply the knowledge base of the social and behavioral sciences to identify, describe, explain, and critically evaluate relevant issues, ethical dilemmas, and arguments.	Same as #3 above.	It is parenthetically noted that preliminary student scores in the pilot study indicate that analysis of cultural situations was an area in which many of our students struggled.	Same as #3 above.	


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Core Competencies Assessment 2010-2011: Area IV Courses -- Social and Behavioral Sciences Competencies

<u>State 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>1. Students will identify, describe and explain human behaviors and how they are influenced by social structures, institutions, and processes within the contexts of complex and diverse communities.</p> <p>Students should: Develop an understanding of self and the world by examining content and processes used by social and behavioral sciences to discover, describe, explain, and predict human behaviors and social systems.</p>	<p>Ling 200G Introduction to Language A skills survey, consisting of nine multiple choice (m/c) items and one essay item, was administered to all Ling 200G students as an in-class assignment in all three sections during the last week of classes in Fall 2010. Students received extra credit for completing the survey. M/C items focused on general knowledge of linguistics and analysis of historical phonological processes of different languages. The essay question asked students to compare and contrast descriptive and prescriptive grammar.</p>	<p>A total of 75 skills surveys were randomly selected from across 3 sections of Ling 200G. M/C items were hand scored and converted to appropriate rubric dimensions for Knowledge/Comprehension and Application/ Analysis. Essays were presented to three raters devoid of student information. Each essay was independently rated by each judge using the rubric for the Synthesis/Evaluation dimension during the Spring 2011 semester.</p> <p>Of the 75 surveys sampled, 55 (73%) scored at least acceptable on the Knowledge/Comprehension dimension, while 36 (48%) scored a minimum of "Acceptable" for the Application/Analysis portion. (The previous year less than 30% scored minimally as "Acceptable" on either dimension.)</p> <p>Scores for the essay ranking minimally as "Acceptable" ranged from 33 (42%) from one judge to 47 (62%) from another judge. The Inter-rater reliability (Krippendorff's alpha) generated a result of .39, indicating only fair agreement among the three judges.</p>	<p>We note here that we have seen considerable improvement from the previous year on the percentage of students scoring a minimum of "Acceptable" on the first two dimensions of our rubric and are ever increasing toward our goal of 80%. Nonetheless, we will continue to examine the wording of the questions to see if there are any aspects of the items that can be improved upon for the upcoming assessment measure.</p> <p>Regarding the essay portion, we will explore the idea of providing students with a more explicit structure in which to frame their responses; this should communicate a clearer level of expectations to both the students and the judges.</p>	<p>Given that this assessment was completed at the end of the semester we are encouraged to note the improvement in performance over the previous year signals a greater retention over the course of the semester for the information examined for the Knowledge/Comprehension and Application/Analysis dimensions. We will continue to seek improvements in this regard.</p> <p>Likewise, we will work on improving the performance of the students on the essays as well as increasing the level of agreement among the independent raters.</p>

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Core Competencies Assessment 2010-11: Area V Courses

New Mexico State University – Las Cruces

Humanities and Fine Arts Competencies


<u>State 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>
<p>1. Students will analyze and critically interpret significant and primary texts and/or works of art (this includes fine art, literature, music, theatre, and film.)</p>	<p>FF - 113 students from multiple courses were presented with a visual image of victims (primarily African Americans) from the 1937 Louisville flood in a food line, standing in front of billboard of the 'American Way' featuring a wealthy white family. Students were provided historical information about the event and were then asked to respond to three writing prompts. Student responses were used to determine students' ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the appropriateness of the student assignment, and the validity of the rubric and scoring process. It is parenthetically noted that preliminary student scores in the pilot study indicate that analysis of a significant primary work of art was an area in which many of our students struggled.</p>	<p>It was determined that with some minor tweaking, the assignments and the rubric could and should be used for the full implementation of the assessment. It was also determined that with increased norming of use of the instrument, paired faculty scoring of student products was a reliable method for assessing student learning. Further plans have been made for the full implementation in the spring, including increasing the number of faculty scorers.</p>	
<p>2. Students will compare art forms, modes of thought and expression, and processes across a range of historical periods and/or structures (such as political, geographic, economic, social, cultural, religious, and intellectual).</p>				
<p>3. Students will recognize and articulate the diversity of human experience across a range of historical periods and/or cultural perspectives.</p>	<p>FF - 113 students from multiple courses were presented with a visual image of victims (primarily African Americans) from the 1937 Louisville flood in a food line, standing in front of billboard of the 'American Way' featuring a wealthy white family. Students were provided historical information about the event and were then asked to respond to three writing prompts. Student responses were used to determine students' ability on this competency. Student responses were scored by</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the appropriateness of the student assignment, and the validity of the rubric and scoring process. It is parenthetically noted that</p>	<p>It was determined that with some minor tweaking, both the assignments and the rubrics could and should be used for the full implementation of the assessment. It was also determined that with increased norming of use of the instrument, paired faculty scoring of student products</p>	

	<p>paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.</p> <p>TT - 76 students from multiple courses were presented with background information and two opposing arguments concerning the controversial revision of Mark Twain's "Adventures of Huckleberry Finn." They were then asked to write a short position paper advocating for one of the positions. Student responses were used to determine students' ability on this competency. Student responses were scored by paired faculty readers from a team of 6 faculty, using a rubric developed by the CASL-GE.</p>	<p>preliminary student scores in the pilot study indicate that recognizing diversity of experiences was an area in which many of our students struggled.</p>	<p>could be a reliable method for assessing student learning. Further plans have been made for full implementation of the assessment in the spring, including increasing the number of faculty scorers.</p>	
<p>4. Students will draw on historical and/or cultural perspectives to evaluate any or all of the following: contemporary problems/issues, contemporary modes of expression, and contemporary thought.</p>	<p>Same as #3 above.</p>	<p>This was a pilot assessment, and the purpose of the pilot was to determine the effectiveness of the assessment procedure, the appropriateness of the student assignment, and the validity of the rubric and scoring process. It is parenthetically noted that preliminary student scores in the pilot study indicate that drawing on historical/cultural perspectives was an area in which many of our students struggled.</p>	<p>Same as #3 above.</p>	

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