Core Competencies Assessment 2010-2011: Area II Courses

LUNA COMMUNITY COLLEGE — **Mathematics – Algebra Competencies**

MATH180 – College Algebra — NM Common Course Number 1114

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will graph functions Students should: a. Sketch the graphs of linear, higher-order polynomial, rational, absolute value, exponential, logarithmic, and radical functions. b. Sketch a graph using point plotting and analysis techniques, including basic transformations of functions such as horizontal and vertical shifts, reflections, stretches, and compressions. c. Determine the vertex, axis of symmetry, maximum or minimum, and intercepts of a quadratic equation.	Pre-Post test assessment (pre-test questions embedded in final exam) Instructor rating of student competencies in core competency rating form (1 low, 5 hi) F10, 6 sections, n=44 Department all-sections final exam with standardized scoring: F10 3 sections, n=20. SP11: 4 sections n= 35 See attached appendices for MATH180 Assessment Reports	**Fall 2010** –final exam C1 average = 78% of students demonstrated proficiency; Competency Rating Form n=44 C1 = 3.24 avg. **FA10** Pre-Post:14%→73% Avg. 59% improvement n=44 **Spring 2011** –final exam C1 average = 59% of students demonstrated proficiency. **SP11** Pre-Post:11%→67% Avg. 56% improvement n= 18	Dept. Math committee working to 1) reduce bias in competency rating forms; 2) increase collaboration in developing all sections final exam, and 3) increase communication among dept math faculty. Committee works to develop strategies to improve assessment tools. Assessment continues to be stressed at department level to improve student learning outcomes. Continue current assessment practices.	Department math faculty meet on a monthly basis to discuss issues and compare progress across MATH180 sections. Math committee works closely with department director to implement active learning strategies. Math faculty regularly present and participate in the LCC Student Learning Outcomes Assessment (SLOA) program.
2. Students will solve various kinds of equations. Students should: a. Solve quadratic equations using factoring, completing the squares, the square root method, and quadratic formula. b. Solve exponential and logarithmic equations. c. Solve systems of two or three linear equations. (Continued)		**Fall 2010**– 3 sections, n=20, final exam C2 average = 59% of students demonstrated proficiency; Competency Rating Form n=44 C2 = 3.25 avg. **Spring 2011** – 4 sections, n= 35, final exam C2 average = 39% of students demonstrated proficiency		

Core Competencies Assessment 2010-2011: Area II Courses, cont.

LUNA COMMUNITY COLLEGE — **Mathematics – Algebra Competencies, cont.**

MATH180 College Algebra — NM Common Course Number 1114

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
3. Students will demonstrate the use of function notation and perform operations on functions. Students should: a. Find the value of a function for a given domain value b. Add, subtract, multiply, divide and compose functions. c. Determine the inverse of a function. d. Compute the difference quotient for a function. e. Correctly use function notation and vocabulary related to functions, i.e. domain, range, independent variable, of, even symmetry, etc.		**Fall 2010**– 3 sections, n=20, final exam C3 average = 59% of students demonstrated proficiency; Competency Rating Form n=44 C3 = 3.2 avg. **Spring 2011** – 4 sections, n= 35, final exam C3 average = 47% of students demonstrated proficiency.		
4. Students will model/solve real-world problems. Students should: a. Use and understand slope as a rate of change. b. Use equations and systems of equations to solve application problems. c. Apply knowledge of functions to solve specific application problems. d. Solve compound interest problems. e. Solve application problems involving maximization or minimization of a quadratic function. f. Solve exponential growth and decay problems.		**Fall 2010**– 3 sections, n=20, final exam C4 average = 62% of students demonstrated proficiency; Competency Rating Form n=44 C4 = 2.8 avg. **Spring 2011** – 4 sections, n= 35, final exam C4 average = 36% of students demonstrated proficiency		

End – Area II - Algebra

Area II-Algebra Assessment Contact Person **Dr. Andrew Feldman** **Oct. 17, 2011** **Phone number 505-454-5306**

Name *Date*

Core Competencies Assessment 2010-2011: Area II Courses, cont.

Luna Community College
MATH195 Calculus I

Mathematics - Calculus I Competencies
NM Common Course # MATH1614

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will demonstrate an understanding of the theoretical, geometrical underpinnings of the calculus. Students should: Algebraically and graphically demonstrate an understanding of: a. Limit b. Tangent line c. Difference quotient d. Fundamental theorem of calculus e. Riemann sums	Pre-Post test assessment (pre-test questions embedded in final exam) Instructor rating of student competencies in core competency rating form (1 poor, 5 excellent) F10, 1 section, n=13; SP11 1 section, n= 8 Final exam F10 1 section, n=13. SP11: 1 section, n= 8	No pretest FA10 or SP11 Final Exams: **FA10** n=13 class average = 74%; **SP11** n=8, class average = 77% Competency rating form (1= poor, 5= excellent) **FA10** C1 = 4.2 class average, n=13; **SP11** C1= 3.9 class average	Only one faculty member teaches Calculus I. Need further work on improving assessment frequency, methods, and reducing bias. Tendency to overrate the students. Improve assessment practice through pre-testing of students and developing assessment tools to measure competencies throughout course. Final exam needs to address specific competencies.	
2. Students will use concepts of function, limit, continuity, derivative, and integral. Students should: Apply the theory of calculus through manipulations involving: a. The finding of limits. b. Using differentiation techniques. c. Working with transcendental & trigonometric functions. d. Determining points of discontinuity and intervals of continuity. (Continued)	Instructor rating of student competencies in core competency rating form F10, 1 section, n=13; SP11 1 section, n= 8	Competency rating form (1= poor, 5= excellent) **FA10** C2 = 3.7 class avg. **SP11** C2 = 3.9 class avg.		

Core Competencies Assessment 2010-2011: Area II Courses, cont.

Luna Community College **Mathematics - Calculus I Competencies**
MATH195 Calculus I **NM Common Course # MATH1614**

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
3. Students will apply methods of calculus to optimization, graphing, and approximation. Students should be able to: a. Find extreme points. b. Understand the graphs of a function and its 1st and 2nd derivatives and how they relate. c. Apply Newton's method. d. Use differentials to approximate functions.	Instructor rating of student competencies in core competency rating form F10, 1 section, n=13; SP11 1 section, n= 8	Competency rating form (1= poor, 5= excellent) FA10 C3 = 3.4, class average; SP11 C3 = 3.6 class average	One section of CALC I; Need further work on improving assessment frequency, methods, and reducing bias.	
4. Students will apply differential and integral calculus to problems in geometry, physics, and other fields. Students should: a. Understand that calculus has many uses in science, business, and other fields. b. Students should be able to solve application problems involving rates of change, optimization, related rates, and acceleration/velocity. End Area II – Calculus I	Instructor rating of student competencies in core competency rating form (1 low, 5 hi) F10, 1 section, n=13; SP11 1 section, n= 8	Competency rating form (1= poor, 5= excellent) FA10 C4 = 3.8 SP11 C4 = 3.9		

Area II-Calculus I Assessment Contact Person **Dr. Andrew Feldman** **Oct 29, 2011** **Phone number** **505-454-5306**
Name *Date*

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College — **Laboratory Science Competencies**

PHYS111 Intro to Physics, PHYS115 General Physics I (Algebra) — Algebra Physics PHYS115 = PHYS1114

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will describe the process of scientific inquiry. Students should: a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition. b. Students should value science as a way to develop reliable knowledge about the world.	All Lab sciences administer pre-post tests, competency rating form and final grade reporting. **FALL2010**: PHYS115 General Physics n=6, **SP11**: PHYS111 Intro to Physics n=6	FA10 competency rating form PHYS115 C1 = 3.2 SP11 competency rating form PHYS111 C1 = 3.3	FA10 Instructor for PHYS115 did not complete pre-post and grade summary; required for further coursework. SP11 PHYS111 instructor did not complete pre-post test assessment and grade summary. Lack of assessment for physics courses resulting in instructors required to present findings in Student Learning Outcomes Assessment committee presentations and required to submit department assessment reports	Full assessment reporting by department faculty
2. Students will solve problems scientifically. Students should: a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods. b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).	**FALL2010**: PHYS115 General Physics n=6, **SP11**: PHYS111 Intro to Physics n=6	FA10 competency rating form PHYS115 C2 = 3.0 SP11 competency rating form PHYS111 C2 = 3.1		
3. Students will communicate scientific information. Students should: (Continued)	**FALL2010**: PHYS115 General Physics n=6, **SP11**: PHYS111 Intro to Physics n=6	FA10 competency rating form PHYS115 C3 = 2.8 SP11 competency rating form PHYS111 C3 = 3.3	All science courses now requiring students to present term paper to rate Comp 3 beginning Fall 2011	

Core Competencies Assessment 2010-2011: Area III Courses, cont.

Luna Community College PHYS111 Intro to Physics, PHYS115 General Physics I			**Laboratory Science Competencies** Algebra Physics PHYS115 = PHYS1114	
State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
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.)				
4. Students will apply quantitative analysis to scientific problems. 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.	**FALL2010**: PHYS115 General Physics n=6, **SP11**: PHYS111 Intro to Physics n=6	FA10 competency rating form PHYS115 C4 = 2.3 SP11 competency rating form PHYS111 C4 = 3.1	Design and add math emphasis to all labs – do better assessment of student math preparedness	Students under-prepared in mathematics for most basic science courses. All Science labs will focus on introducing dimensional analysis, metric system, and scientific notation while also addressing basic math skills.
5. Students will apply scientific thinking to real world problems. 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. End – Laboratory Science	**FALL2010**: PHYS115 General Physics n=6, **SP11**: PHYS111 Intro to Physics n=6	FA10 competency rating form PHYS115 C5 = 2.4 SP11 competency rating form PHYS111 C5 = 3.5		

Area III Assessment Contact Person **Dr. Andrew Feldman** **Oct 28, 2011** **Phone number** **505-454-5306**

Name ***Date***

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College GEOL101 Survey of Earth Science			**Laboratory Science Competencies** GEOL1114	
State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will describe the process of scientific inquiry. Students should: a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition. b. Students should value science as a way to develop reliable knowledge about the world.	All Lab sciences administer pre-post tests, competency rating form and final grade reporting. **FALL2010**: GEOL101 Survey of Earth Science n=18, One section offered **SP2011:** GEOL101 Survey of Earth Science n=17, one section offered	FA10 – course competency form C1 = 3.1 Pre-test avg. 43% Post-test avg. 77.2% Avg. 34.2% increase: 5.5%A, 33.3%B, 11.1%C, 11.1%D, 1.67%F, 12/18 completed course SP11 – course competency form C1 = 3.3	Continue current assessment methods, add term paper to be presented orally	
2. Students will solve problems scientifically. Students should: a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods. b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).		FA10 – course competency form C2 = 3.25 SP11 – course competency form C2 = 3.2 Pre-test avg. 41% Post-test avg. 75.3% Avg. 34.4% increase 12.5%A, 31.25%B, 43.75%C, 12.5%F 14/17 completed course		
3. Students will communicate scientific information. Students should: (Continued)		FA10 – course competency form C3 = 3.1 SP11 – course competency form C3 = 3.1	Orally presented term paper required starting Fall 2011	

GEOL 101 Survey of Earth Science			GEOL1114	
State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
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.)				
4. Students will apply quantitative analysis to scientific problems. 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.		FA10 – course competency form C4 = 3.2 SP11 – course competency form C4 = 3.0	Design and add math emphasis to all labs – do better assessment of student math preparedness	Students under-prepared in mathematics for most basic science courses. All Science labs will focus on introducing dimensional analysis, metric system, and scientific notation while also addressing basic math skills.
5. Students will apply scientific thinking to real world problems. 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. End – Laboratory Science		FA10 – course competency form C5 = 3.3 SP11 – course competency form C5 = 3.2		

Area III Assessment Contact Person **Dr. Andrew Feldman** **Oct 28, 2011** **Phone number** **505-454-5306**

Name ***Date***

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College — **Laboratory Science Competencies**

BIO105 Biology for Non-Majors — BIO1114

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will describe the process of scientific inquiry. Students should: a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition. b. Students should value science as a way to develop reliable knowledge about the world.	All Lab sciences administer pre-post tests, competency rating form and final grade reporting. **FALL2010**: BIO105 Biology for Non-Majors n=14, One section offered **SP2011:** Course offered but no reporting	FA10 – course competency form C1 = 4.8 Pre-test avg. 33.75% Post-test avg. 81.9% Avg. 48% increase: 50%A, 7%B, 21%C, 21%F, 11/16 completed course	Continue current assessment methods, add orally presented term paper to address Comp 3 Course offered in Spring 2011 but instructor failed to submit reports	
2. Students will solve problems scientifically. Students should: a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods. b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).		FA10 – course competency form C2 = 3.8		
3. Students will communicate scientific information. Students should: (Continued)		FA10 – course competency form C3 = 3.8	Require oral presentation of term paper to address Comp 3	

Core Competencies Assessment 2010-2011: Area III Courses, cont.

Luna Community College — **Laboratory Science Competencies**

BIO105 Biology for Non-Majors — BIO1114

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
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.)				
4. Students will apply quantitative analysis to scientific problems. 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.		FA10 – course competency form C4 = 3.9	Design and add math emphasis to all labs – do better assessment of student math preparedness	Students under-prepared in mathematics for most basic science courses. All Science labs will focus on introducing dimensional analysis, metric system, and scientific notation while also addressing basic math skills.
5. Students will apply scientific thinking to real world problems. 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.		FA10 – course competency form C5 = 4.2		

End – Laboratory Science

Area III Assessment Contact Person **Dr. Andrew Feldman** **Oct 28, 2011** **Phone number** **505-454-5306**

Name ***Date***

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College — **Laboratory Science Competencies**

BIO110 General Bio I, BIO111 General Bio II — BIO1214, BIO1224

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will describe the process of scientific inquiry. Students should: a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition. b. Students should value science as a way to develop reliable knowledge about the world.	All Lab sciences administer pre-post tests, competency rating form and final grade reporting. **FALL2010**: BIO110 General Biology 1 n=17 **SP2011:** BIO111 General Biology II n=6 One section offered of each course	FA10 – BIO110 course competency form C1 = 3.9 Pre-test avg. 66% Post-test avg. 83% Avg. increase 17% 17%A, 35%B, 17%C, 31%F 12/17 completed course SP11 – BIO111 course competency form C1 = 3.3	Instructor bias and leniency affecting assessment reporting – instructor training in assessment required to accurately gauge student learning outcomes. Continue current assessment methods, but promote instructor training to better assess student learning outcomes.	Goal: to improve assessment practices in BIO110/111. Priority: hire more qualified faculty to deliver course.
2. Students will solve problems scientifically. Students should: a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods. b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).		FA10 – BIO110 course competency form C2 = 3.5 SP11 – BIO111 course competency form C2 = 3.3 Pre-test avg. 41% Post-test avg. 74% Avg. increase 33% 50%A, 33.3%B, 16.6%D 5/6 completed course		
3. Students will communicate scientific information. Students should: (Continued)		FA10 – BIO110 course competency form C3 = 3.6 SP11 – BIO111 course competency form C3 = 3.2		

Core Competencies Assessment 2010-2011: Area III Courses, cont.

Luna Community College — **Laboratory Science Competencies**

BIO110 General Bio I, BIO111 General Bio II — BIO1214, BIO1224

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
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.)				
4. Students will apply quantitative analysis to scientific problems. 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.		FA10 – BIO110 course competency form C4 = 3.5 SP11 – BIO111 course competency form C4 = 3.3	Design and add math emphasis to all labs – do better assessment of student math preparedness	Students under-prepared in mathematics for most basic science courses. All Science labs will focus on introducing dimensional analysis, metric system, and scientific notation while also addressing basic math skills.
5. Students will apply scientific thinking to real world problems. 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. End – Laboratory Science		FA10 – BIO110 course competency form C5= 3.4 SP11 – BIO111 course competency form C5 = 3.3		

Area III Assessment Contact Person **Dr. Andrew Feldman** **Oct 28, 2011** **Phone number** **505-454-5306**

Name *Date*

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College — **Laboratory Science Competencies**

CHEM105/106 Intro to Chemistry 1 & 2 — CHEM1114, CHEM1224

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will describe the process of scientific inquiry. Students should: a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition. b. Students should value science as a way to develop reliable knowledge about the world.	All Lab sciences administer pre-post tests, competency rating form and final grade reporting. **FALL2010**: Intro Chem I n= 18, **SP2011**: Intro Chem II n=5 One section of each course	FA10 – CHEM105 course competency form C1 = 2.72 Pre-test avg. 62% Post-test avg. 58.8% Avg. increase (-3,2%) 11%A, 33%B, 16%C, 16%D,11%F 11/18 completed course SP11 – BIO111 course competency form C1 = 3.25	Assessments not gauging actual student knowledge based on evaluation of assessment tools. Will continue current assessment practices, but train instructor to eliminate bias and increase rigor of assessment.	Assessment of CHEM 111 & 112 now being taught by different instructor to evaluate readiness of students who completed CHEM105 prior to CHEM111. Goal: to improve assessment practices in CHEM105. Priority: hire more qualified faculty to deliver course.
2. Students will solve problems scientifically. Students should: a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods. b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).		FA10 – CHEM105 course competency form C2 = 2.5 SP11– CHEM106 course competency form C2 = 3.5 Pre-test avg. 48.25% Post-test avg. 82.75% Avg. increase 34.5% 40%A, 20%B, 20%C, 20%W 4/5 completed course		
3. Students will communicate scientific information. Students should: (Continued)		FA10 – CHEM105 course competency form C3 = 2.5 SP11– CHEM106 course competency form C3 = 3.25	Adding oral presentation of term paper to all lab science courses	

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College — **Laboratory Science Competencies**

CHEM105/106 Intro to Chemistry 1 & 2 — CHEM1114, CHEM1224

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
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.)				
4. Students will apply quantitative analysis to scientific problems. 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.		FA10 – CHEM105 course competency form C4 = 2.6 SP11– CHEM106 course competency form C4 = 3.5	Design and add math emphasis to all labs – do better assessment of student math preparedness	Students under-prepared in mathematics for most basic science courses. All Science labs will focus on introducing dimensional analysis, metric system, and scientific notation while also addressing basic math skills.
5. Students will apply scientific thinking to real world problems. 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. End – Laboratory Science		FA10 – CHEM105 course competency form C5 = 2.5 SP11– CHEM106 course competency form C5 = 3.25		

Area III Assessment Contact Person **Dr. Andrew Feldman** **Oct 28, 2011** **Phone number** **505-454-5306**

Name *Date*

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College — **Laboratory Science Competencies**
ENVS102 Environmental Science — ENVS1114

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
1. Students will describe the process of scientific inquiry. Students should: a. Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition. b. Students should value science as a way to develop reliable knowledge about the world.	All Lab sciences administer pre-post tests, competency rating form and final grade reporting. **FALL2010**: ENVS102 Environmental Science n=8 SP2011: ENVS102 Sec01 n= 19 ENVS102 Sec02 n= 12	FA10 – ENVS102 course competency form C1 = 2.72 Pre-test avg. 66% Post-test avg. 71% Avg. increase 5% 25%A, 37%B, 2.5%C, 25%W 6/8 completed course SP11 – ENVS102-01 course competency form C1 = 2.9 SP11 – ENVS102-02 course competency form C1 = 3.7	Pre-test lacks rigor; train instructor on preparing more inclusive pre-test for baseline of student knowledge coming into course. Continue current assessment practices.	Goal: to improve assessment practices in ENVS102 Priority: hire more qualified faculty to deliver course.
2. Students will solve problems scientifically. Students should: a. Be able to construct and test hypotheses using modern lab equipment (such as microscopes, scales, computer technology) and appropriate quantitative methods. b. Be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories).		Sp2011 – ENVS102-**01** course competency form C1 = 2.72 Pre-test avg. 19.5% Post-test avg. 91.7% Avg. increase 72.2% 16%A, 37%B, 42%C, 5%D 18/19 completed course SP11 – ENVS102-01 course competency form C2 = 2.89 SP11 – ENVS102-02 course competency form C2 = 4.0	SP2011 - Section 01; Pre-post test scores inflated on post test; after evaluation of assessment instrument, instructor assessment noted to as insufficient at gauging student learning. Same instructor competency rating does not match with assigned grades- continue to work with instructor to develop fair and unbiased assessment practices for both objective and subjective measures.	
3. Students will communicate scientific information. Students should: (Continued)				

Core Competencies Assessment 2010-2011: Area III Courses

Luna Community College — **Laboratory Science Competencies**

ENVS102 Environmental Science — ENVS1114

State Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**	**(Optional)** Recommendations/Goals/ Priorities
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.)		SP11 – ENVS102-01 course competency form C3 = 3.05 SP11 – ENVS102-02 course competency form C3 = 3.9		
4. Students will apply quantitative analysis to scientific problems. 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.		SP11 – ENVS102-01 course competency form C4 = 3.0 SP11 – ENVS102-02 course competency form C4 = 3.9 Sp2011 – ENVS102-**02** Pre-test avg. 78% Post-test avg. 89% Avg. increase 11% 25%A, 50%B, 8%F, 16%W 9/12 completed course	Design and add math emphasis to all labs – do better assessment of student math preparedness	Students under-prepared in mathematics for most basic science courses. All Science labs will focus on introducing dimensional analysis, metric system, and scientific notation while also addressing basic math skills.
5. Students will apply scientific thinking to real world problems. 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. End – Laboratory Science		SP11 – ENVS102-01 course competency form C5 = 3.0 SP11 – ENVS102-02 course competency form C5 = 3.9		

Area III Assessment Contact Person **Dr. Andrew Feldman** **Oct 28, 2011** **Phone number 505-454-5306**

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