

NM HED Area III: Laboratory Science Competencies
UNM Core Area 3: Physical and Natural Sciences

Competency <i>Students will:</i>	Rationale <i>Students should:</i>	Assessment Suggestions
1. Describe the process of scientific inquiry.	<ul style="list-style-type: none"> Understand that scientists rely on evidence obtained from observations rather than authority, tradition, doctrine, or intuition. Students should value science as a way to develop reliable knowledge about the world. 	<ul style="list-style-type: none"> Presentation of case studies, problems, and/or laboratory exercises that call for the student to apply the “scientific method.”
2. Solve problems scientifically.	<ul style="list-style-type: none"> Be able to construct and test hypotheses using modern laboratory equipment (such as microscopes, scales, and computer technology) and appropriate quantitative methods. Students should be able to evaluate isolated observations about the physical universe and relate them to hierarchically organized explanatory frameworks (theories). 	<ul style="list-style-type: none"> Presentation of case studies, problems, and/or laboratory exercises that call for the student to construct and test hypotheses related to the scientific discipline they have elected to study.
3. Communicate scientific information.	<ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> Require written and oral work to be evaluated according to college level writing criteria, as well as the standards of the field being studied.
4. Apply quantitative analysis to scientific problems.	<ul style="list-style-type: none"> Select and perform appropriate quantitative analyses of scientific observations. Students should show familiarity with the metric system, use a calculator to perform appropriate mathematical operations, and present results in tables and graphs. 	<ul style="list-style-type: none"> Presentation of case studies, problems, and/or laboratory exercises that call for the student to apply appropriate quantitative techniques for the level and type of material being covered.
5. Apply scientific thinking to real world problems.	<ul style="list-style-type: none"> Critically evaluate scientific reports or accounts presented in the popular media, 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. 	<ul style="list-style-type: none"> Presentation of case studies, problems, and/or laboratory exercises that call for the student to critically evaluate scientific accounts from the popular media. Exam questions should call upon higher-order thinking rather than rote knowledge.