

Assessment of Institutional Learning Outcomes

Academic Year: 2015-2016

New Mexico State Alamogordo's Institutional Learning Outcomes (ILO) represent the knowledge, skills, and attitudes that all NMSU students are expected to acquire upon completion of a degree or certificate. They are broad in scope and encompass many content areas.

Methodology

The current assessment method attempts to evaluate students' acquisition of ILOs via information and data gathered from Degree Program assessment.

This methodology was followed in this assessment.

1. Determining the nature of alignment of Program Learning outcomes to ILOs
 - Two sources were used: an independent review by a Master's level student intern and alignment maps generated by groups of faculty as they developed Program Assessment plans.
2. Cross-matching of strongly aligned Program Learning outcomes with those targeted outcomes actually assessed in 2015-2016 to locate data and results.
3. Identification of Program data to be used (from Program Assessment Reports)
4. Identification of individual courses and subsequent examination of course level reports to identify aligned data
5. Compilation of located data in tables for each individual ILO.
6. Analysis of compiled data by ILO.
7. Synthesis of all data for a broad picture of student acquisition of knowledge, skills, and attitudes represented by ILOs.

The following tables represent samples of alignment, cross-matching to locate data, identification of data to be used, and compilation of data for each individual ILO.

Table 1: Sample Alignment Table from Assessment Plans Generated by Faculty

	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6
EARLY CHILDHOOD	Critical Thinking	Communication Literacy	Technology	Mathematics Skills	Scientific Inquiry	Diversity and Ethical Principles
Program Outcome						
Design learning activities that incorporate early mathematical concepts of reasoning, communicating, and problem solving	Partial Match			Strong Match		
Describe the involvement of families and communities from diverse cultural backgrounds		Partial Match				Strong Match
Apply principles of professional responsibility including cultural responsiveness and reflective practice						Strong Match

Table 2: Sample Page from Independent Determination of Alignment

Science		Institution Learning Outcomes		
		Critical Thinking: Recognize sound reasoning, critically assess information, critically assess arguments, analyze arguments from multiple perspectives, arrive at a logical conclusion	Communication/Literacy: Write college level essay, write paper using borrowed material, speak effectively in groups or in front of groups, find and evaluate information, read at college level, listen effectively, demonstrate ability to interact and	Technology: Use appropriate technology for research, communication and problem solving
Learning Outcomes	1. Demonstrate proper use of laboratory equipment to collect relevant and quality data.	No alignment	No alignment	Acceptable Alignment-- Laboratory equipment relates to the use of technology for research
	2. Demonstrate mathematical techniques to evaluate and solve scientific problems.	No alignment	No alignment	No alignment
	3. Employ critical thinking skills to judge the validity of information from a scientific perspective.	Strong Alignment--Directly addresses critical thinking	Acceptable Alignment--Judging the validity of information is the same as evaluating information, which is part of the communication ILO	No alignment

Table 3: Cross-Matching to Find Data

Strong Alignment Between Program Learning Outcomes and ILO	Learning Outcome Was Assessed and Reported in 2015-2016 Program Report
<i>ILO. 1—Critical Thinking</i> Associate of Arts—Learning outcome # 1	Yes
<i>ILO.1—Critical Thinking</i> Graphic Design—Learning outcome # 7	No
<i>ILO.2—Communication/Literacy</i> Biomedical Tech—Learning outcome # 3, 4, 6	Yes
<i>ILO.2—Communication/Literacy</i> Associate of Science—Learning outcome #4	No
<i>And so on...And so on and on!</i>	

Table 1: Identification of Program Report Data Used

Institutional Learning Outcome	Sources of Data from Program Reports 2015-2016
ILO.1 Critical Thinking	<ul style="list-style-type: none">• Associate of Arts: ENG 211• Business Management: ACCT 222• PreBusiness: ECON 201, ECON 252
ILO.2 Communication/Literacy	<ul style="list-style-type: none">• Associate of Arts: COMM 253, COMM 265• Biomedical Equipment Technology: OEEM 140• Social Services: PSYCH 201
ILO.3 Technology	<ul style="list-style-type: none">• Information Technology: ET 283• Social Services: PSYCH 201
ILO.4 Mathematics Skills	<ul style="list-style-type: none">• General Engineering: MATH 191, 192, ENGR 111, CHEM 111, PHYS 215GL• Associate of Science: Math 191, BIO 111, BIO 221, BIO 221GL, CHEM 110, PHYS 211
ILO.5 Scientific Inquiry	<ul style="list-style-type: none">• Associate of Science: BIO 111GL, BIO 211GL, BIO 221GL
ILO.6 Diversity & Ethical Principles	<ul style="list-style-type: none">• Social Services: PSYCH 266

Compilation and Analysis of Data by ILO

ILO 1: Critical Thinking

- A. Recognize sound reasoning
- B. Critically assess information
- C. Critically assess arguments
- D. Analyze arguments from multiple perspectives
- E. Arrive at a logical conclusion

• Program:	Associate of Arts		
Course	# of semesters of data or results	Type of data	Results
English 211	2 FA 2015, SP 2016	3 assignments Class average on each	FA 2015 Assign # 1 = 82.7% Assign # 2 = 83.5% Assign # 3 = 84.4% <hr/> SP 2016 Assign # 1 = 85.4% Assign # 2 = 81.2% Assign # 3 = 84.4%
Program:	Business Management		
Course	# of semesters	Type of data	Results
ACCT 222	9 SP 2013-FA 2015 (including summer)	1 assignment	Cumulative: 94% of students received a grade of 70% or better
Program:	PreBusiness		
Courses	# of semesters	Type of data	Results
ECON 201 ECON 252	5 FA 2013-FA 2015	1 assignment	>50% of students received a score of 70% or better

Summary/Analysis:

- Strong Points: Three different programs; four different courses; spans multiple semesters
- Weak points: Two of three programs contain only single assignments represented

Results:

- It appears that students are receiving practice in acquiring this skill in several programs and courses. Results provide indications that student performance is acceptable.
- It may be inferred with **good confidence** that NMSU-A students are engaged in and acquiring critical thinking skills.

ILO 2: Communication/Literacy

- A. Write a college-level essay
- B. Write a paper using borrowed material
- C. Speak effectively in groups and in front of groups
- D. Find and evaluate information
- E. Read at the college level
- F. Listen effectively
- G. Demonstrate the ability to interact and work well with others

Program:	Associate of Arts		
Course	# of semesters of data or results	Type of data	Results
COMM 253 COMM 265	Multiple 515 final speech scores	Speech scores	89% of scores exceeded criteria for success of 75%
Program:	Biomedical Technology		
Course	# of semesters	Type of data	Results
OEBM140	1	2 exams	Exam 1: 86% passed exam. (80% class avg.) Exam 4: 57% passed exam. 80% of those who took the exam passed. (79% class avg.)
Program:	Social Services		
Courses	# of semesters	Type of data	Results
PSYCH 201G	1	Essay Scored with Rubric	90% of the students met the success criteria according to rubric

Summary/Analysis:

- Strong Points: Three different programs; four different courses; one course with multiple scores
- Weak points: Data from OEBM 140 may be deceiving—does class average include scores of those not passing? Some courses reflect only one semester.

Results:

- It appears that students are receiving practice in acquiring this skill in several programs and courses. Results provide indications that student performance is acceptable.
- It may be inferred with **some confidence** that NMSU-A students are engaged in and acquiring skills in communicating effectively.

ILO 3: Technology

- A. Use appropriate technology for research
- B. Use appropriate technology for communication
- C. Use appropriate technology in problem solving

D. Program:	Information Technology		
Course	# of semesters of data or results	Type of data	Results
ET 283	2 FA 2015 SP 2016	Class Average on 2 LabSim exercises: Fall 2015 Spring 2016	LabSim class Average Fall 2015: 74.01% LabSim class Average Spring 2016: 89.31%
Program:	Social Services		
Course	# of semesters	Type of data	Results
PSYCH 201G	1	Essay Scored with Rubric	90% of the students met the success criteria according to rubric

Summary/Analysis:

- Strong Points: Two different programs; Two different types of measurement
- Weak Points: Very limited data; only two programs and two courses; limited semesters

Results:

- It appears that students are receiving some practice in acquiring this skill several programs and courses. Limited information indicates student performance is acceptable.
- It may be inferred with **limited confidence** that NMSU-A students are engaged in and acquiring skills in the use of technology.

ILO 4: Mathematics Skills

- A. Perform computations
- B. Apply mathematics

Program:	General Engineering		
Courses	# of semesters of data or results	Type of data	Results
Math 191	1 SP 2016	Average score on all assignments	Average score: 89%
Math 192	SP 2016	Exam: Two questions	Average score 1 st question: >75% Average score 2 nd question: 69%
ENGR 111	1 SP 2016	Average score on all homework and quizzes	Average score: 86%
CHEM 111	1 SP 2016	Average score of passing students on lab reports and exams	71.4% of passing students earned > 79.5% on submitted lab reports 100% of passing students earned > 69.5% on exams
PHYS 215 GL	1 SP 2016	Average group score on Acceleration lab on air track	Students scored 90% to 100% on lab as teams
Program:	Science		
Courses	# of semesters	Type of data	Results
Math 191	1 SP 2016	Semester exam: class average	Class average: 86%
BIO 111	1 SP 2016	Test 3: class average	Class average: 86%
BIO 221 BIO 221GL	1 SP 2016	Exam 1: class average Procedure quiz: class average	Exam average: 84.8% Procedure quiz: 97%
CHEM 110	1 SP 2016	Exam 2: class average	Class average: 76%
PHYS 211G	1 SP 2016	Exam 3: class average	Class average: 65.1%

Summary/Analysis: ILO 4: Mathematics Skills

Summary/Analysis:

- Strong Points: Two different programs; nine different courses, includes multiple types of measures (quizzes, lab, exam, assignment)
- Weak Points: Addresses only one semester; two very similar programs; data from Math 192 reflects only two questions on exam; data from CHEM 111 may be deceiving—does class average include scores of those not passing?

Results:

- It appears that students are receiving some practice in acquiring this skill in several programs and courses. Information indicates student performance is acceptable in most cases. Class averages are low in CHEM 111, PHYS 211
- It may be inferred with **some confidence** that NMSU-A students are engaged in mathematics skills in some programs. Successful acquisition of skills is apparent in most cases shown.

ILO 5: Scientific Inquiry

- A. Articulate the scientific method
- B. Apply the scientific method
- C. Analyze data

Program:	Associate of Science		
Courses	# of semesters of data or results	Type of data	Results
BIO 111GL	1 SP 2016	Lab investigation class average	Class average: 82%
BIO 211GL		Lab (meiosis) class average	Class average: 72.5%
BIO 221GL		Lab (staining) class average	Class average: 96%

Summary/Analysis:

- Strong Points: Three different classes
- Weak Points: Addresses only one semester; only one program; only one type of measure (lab)

Results:

- It appears that students are receiving some practice in acquiring this skill in several lab courses. Information indicates student performance is acceptable in most cases.
- It may be inferred with **very limited confidence** that NMSU-A students are engaged in skills of scientific inquiry in this program. Successful acquisition of skills is apparent in cases shown.

ILO 6: Diversity & Ethical Principles

- A. Demonstrate an awareness of diversity issues
- B. Demonstrate an awareness of ethical principles

Program:	Social Services		
Course	# of semesters of data or results	Type of data	Results
PSY 266	1 FA 2015	Course exercises, analysis of statements as to ethical actions Percentage of responses reflecting ethical answers	80% of the question responses reflected the expected ethical answers prior to the discussion with the remaining 20% resolved during the class discussion

Summary/Analysis:

- Strong Points: Data available
- Weak Points: Addresses only one semester; only one program; only one class, only one type of measure

Results:

- It appears that students are receiving some practice in acquiring this skill in this class. Information indicates student performance is acceptable in this one case.
- NMSU-A students are engaged in this area—diversity and ethics-- in this class. There is **no confidence** in saying that NMSU-A students as a whole are acquiring this skill or attitude.

Summary/ Conclusions

Data gained from program assessment is limited. However, it appears that the quantity and nature of the data in the areas of Critical Thinking, Communication/Literacy, and Mathematics Skills is reasonable enough to conclude that students are engaged in and beginning to acquire skills in these three areas.

Limitations:

- First year of reporting program assessment data
- Several program reports only contain one semester of data or information
- Several program reports only contain one or two representative courses
- Data is not terminal data (not obtained upon completion of program) and represents progress only

This is a first attempt at using this process (use of data from assessment of program learning outcomes) to assess Institutional Learning Outcomes. However, it does appear that this may be a viable method of assessing ILOs without implementing an additional process. More data will be obtained as program assessment reporting enters into the second year and can be added and reviewed.