

Developmental Studies Student Learning Report (rev. 7/14)

Fall 2014 – Spring 2015

The Department of Mathematics & Physical Sciences in the School of Mathematics, Science & Health Sciences

Developmental Math and Science

Effectively assessing a degree program should address a number of factors:

- 1) Valid student learning outcomes should be clearly articulated;
- 2) Valid assessment measures should be used, consistent with the standards of professional practice;
- 3) There should be evidence that assessment data are being used by faculty to make necessary instructional or assessment changes; and there should be evidence that instructional or assessment changes are being implemented to improve student learning.

PART 1 (A & B)

Relationship of Degree Program Learning Outcomes to Departmental and University Missions

- A. Clearly state the school, department and degree program missions.

University Mission	School Mission	Department Mission	Degree Program Mission
Our mission is to ensure students develop the skills and knowledge required to achieve professional and personal goals in dynamic local and global communities.	Central to the mission of the School of Mathematics, Science & Health Science is the preparation of students to achieve professional and personal goals in their respective disciplines and to enable their success in dynamic local and global communities. Three departments comprise this School, the	The Mission of the Math and Physical Science Department is to support and facilitate the students' pursuit of knowledge and to prepare them for a future of dynamically changing technological and scientific advances. This is accomplished by preparing	Our mission in Developmental Education is to ensure that skill deficient students develop the math and science skills necessary to be successful in their college-level classes to promote their future personal and professional success in their local and global communities.

University Mission	School Mission	Department Mission	Degree Program Mission
	Departments of Biology, Health Science, and Math and Physical Science. These departments pledge to deliver existing and newly developed programs that meet student demands, and to be responsive to the evolving culture of academia in general and the sciences in particular.	them academically in the areas of critical thinking, analytical analyses, communication through written and graphical means, and fostering thinking in terms of processes.	
	Our Strategy is to foster an academic setting of diverse curricula that inherently incorporates an environment of service and collegiality.	This mission is also focused on integrating the above skills in their daily lives within a fast changing society and technology.	

B. Clearly state school purposes, department purposes and degree program student learning outcomes. Align student learning outcomes with their appropriate school and department purposes, and these outcomes and purposes with their appropriate university commitments.

University Commitments	School Purposes	Department Purposes	Student Learning Outcomes
To provide quality associate, baccalaureate, and graduate degree opportunities and educational experiences which foster student excellence in oral and written communications, scientific reasoning and critical and creative thinking.	The School will offer developmental courses that will prepare students for college careers that will enhance their quality of life. This will be accomplished by honing and developing analytical and communication skills.	The Math and Physical Science Department will provide courses that will hone mathematical and scientific analytical skills, creative problem solving, critical thinking and data gathering as well as process thinking. These learned skills will prepare the students to be successful in college level math and science courses.	1) Students will demonstrate mastery of mathematic skills necessary for entry-level collegiate study. 2) Students will demonstrate mastery of scientific principles necessary for entry-level collegiate study.
To promote an atmosphere of academic and intellectual freedom and respect for diverse expression in an environment of physical safety that is supportive of teaching and learning.			

University Commitments	School Purposes	Department Purposes	Student Learning Outcomes
To provide a general liberal arts education that supports specialized academic programs and prepares students for lifelong learning and service in a diverse society.			
To provide students with a diverse, innovative faculty dedicated to excellence in teaching, scholarly pursuits and continuous improvement of programs.			
To provide university-wide student services, activities and resources that complement academic programs.			
To support and strengthen student, faculty and administrative structures that promote shared governance of the institution.			
To promote and encourage student, faculty, staff and community interaction in a positive academic climate that creates opportunities for cultural, intellectual and personal enrichment for the University and the communities it serves.			

PART 2

Discussion of Instructional Changes Resulting from 2013-2014 Developmental Studies Student Learning Report

List and discuss all instructional or assessment changes proposed in Part 5 of last year's Degree Program Student Learning Report, whether implemented or not. Any other changes or assessment activities from last year, but not mentioned in last year's report, should be discussed here as well. Emphasis should be placed on student learning and considerations such as course improvements, the assessment process, and the budget. If no changes were planned or implemented, simply state "No changes were planned or implemented."

Instructional or Assessment Changes	Changes Implemented (Y/N)	Impact of Changes on Degree Curriculum or Budget
<p>No changes were proposed. But due to the unavailability of BIOL0123 data, the outcome</p> <p>2) Students will demonstrate mastery of scientific principles necessary for entry-level collegiate study has not been assessed in this report unlike in the previous year.</p>		

PART 3

Discussion of the University Assessment Committee's 2013-2014 Peer Review Report

The University Assessment Committee in its Developmental Studies Peer Review Report provided feedback and recommendations for improvement in assessment. List or accurately summarize all feedback and recommendations from the committee, and state whether they were implemented or will be implemented at a future date. If they were not or will not be implemented, please explain why. If no changes were recommended last year, simply state "No changes were recommended."

Feedback and Recommended Changes from the University Assessment Committee	Suggestions Implemented (Y/N)	Changes that Were or Will Be Implemented, or Rationale for Changes that Were Not Implemented
Developmental Math and Sciences		
<p>1) The UAC advocates the use of distributional tables to report student scores. This presents a much richer picture of student achievement toward outcomes than a simple percentage of students meeting the standard. It appears that only a portion of the data was presented in this manner. Please consider making this change.</p> <p>2) The UAC advocates separating assessment data by class delivery mode. Data from on-</p>	Y	<p>Distributional tables were used.</p> <p>Results (percentages) were given based on class delivery mode.</p>

<p>ground, online, and blended courses should be reported separately.</p> <p>Developmental Reading and Writing</p> <p>1) A single nebulous learning outcome is difficult to assess. Consider splitting the single learning outcome into the following two outcomes:</p> <p>SLO 1: Students will demonstrate mastery of basic reading skills necessary for entry-level collegiate study.</p> <p>SLO 2: Students will demonstrate mastery of basic writing skills necessary for entry-level collegiate study.</p> <p>Each outcome would then have a single associated measure.</p>	N	<p>Due to unavailability of data, Developmental Reading and Writing has not been assessed in this report.</p>
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PART 4

Analysis of Evidence of Developmental Studies Student Learning Outcomes

For all student learning outcomes (as listed in Part 1 B above), describe the assessment measures and performance standards used, as well as the sampling methods and sample sizes. For each measure, document the results of the activity measured and draw relevant conclusions related to strengths and weaknesses of their performance.

A. Student Learning Outcomes	B. Assessment Measures	C. Performance Standards	D. Sampling Methods	E. Sample Size (N)	F. Results	G. Conclusions	H. Performance Standards Met (Y/N)
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A. Student Learning Outcomes	B. Assessment Measures	C. Performance Standards	D. Sampling Methods	E. Sample Size (N)	F. Results	G. Conclusions	H. Performance Standards Met (Y/N)																																	
1) Students will demonstrate mastery of mathematic skills necessary for entry-level collegiate study.	1a. Posttest in Elementary Algebra Plus with four course objective areas of Order of Operations, Algebraic Expressions, Algebraic Equations, and Applications.	1a. 65% of the students taking both the pretest and the posttest will score at least 65% on the posttest.	1a. Students took the posttest in day, evening, and online sections taught by both fulltime and adjunct faculty on all three campuses summer and fall semesters.	1a. 124 Students (Online-33 On campus-91)	Posttest results: <table><thead><tr><th>% score</th><th>#</th><th>%</th></tr></thead><tbody><tr><td>< 20</td><td>0</td><td>0</td></tr><tr><td>21-30</td><td>0</td><td>0</td></tr><tr><td>31-40</td><td>4</td><td>3</td></tr><tr><td>41-50</td><td>7</td><td>6</td></tr><tr><td>51-64</td><td>28</td><td>23</td></tr><tr><td>65-70</td><td>21</td><td>17</td></tr><tr><td>70-80</td><td>36</td><td>29</td></tr><tr><td>81-90</td><td>21</td><td>17</td></tr><tr><td>91-100</td><td>7</td><td>6</td></tr></tbody></table>	% score	#	%	< 20	0	0	21-30	0	0	31-40	4	3	41-50	7	6	51-64	28	23	65-70	21	17	70-80	36	29	81-90	21	17	91-100	7	6	Overall 69% of the students taking the posttest made 65% or above. Out of the online sections, only 61% of the students taking posttest made 65% or above. Out of the on campus sections, 73% of the students made 65% or above. Online sections alone did not meet the standards.	1a. Y			
% score	#	%																																						
< 20	0	0																																						
21-30	0	0																																						
31-40	4	3																																						
41-50	7	6																																						
51-64	28	23																																						
65-70	21	17																																						
70-80	36	29																																						
81-90	21	17																																						
91-100	7	6																																						
	1b. Posttest in Intermediate Algebra with four course objective areas of Slope & Line, Functions, Systems & Equations, and Quadratic Equations.	1b. 65% of the students taking both the pretest and the posttest will score at least 65% on the posttest.	1b. Students took the posttest in day, evening, and online sections taught by fulltime and adjunct faculty on all three campuses summer and fall semesters	1b. 161 students. (Online 27 On campus-134)	Posttest results: <table><thead><tr><th>% score</th><th>#</th><th>%</th></tr></thead><tbody><tr><td>0-10</td><td>0</td><td>0</td></tr><tr><td>11-20</td><td>0</td><td>0</td></tr><tr><td>21-30</td><td>1</td><td>1</td></tr><tr><td>31-40</td><td>4</td><td>2</td></tr><tr><td>41-50</td><td>3</td><td>2</td></tr><tr><td>51-64</td><td>20</td><td>12</td></tr><tr><td>65-70</td><td>17</td><td>11</td></tr><tr><td>71-80</td><td>43</td><td>27</td></tr><tr><td>81-90</td><td>46</td><td>29</td></tr><tr><td>91-100</td><td>27</td><td>17</td></tr></tbody></table>	% score	#	%	0-10	0	0	11-20	0	0	21-30	1	1	31-40	4	2	41-50	3	2	51-64	20	12	65-70	17	11	71-80	43	27	81-90	46	29	91-100	27	17	Overall 84% of the students taking the posttest made 65% or above. Out of the online sections, 67% of the students taking posttest made 65% or above. Out of the on campus sections, 87% of the students made 65% or above. Both online and on campus sections met the standards.	1b. Y
% score	#	%																																						
0-10	0	0																																						
11-20	0	0																																						
21-30	1	1																																						
31-40	4	2																																						
41-50	3	2																																						
51-64	20	12																																						
65-70	17	11																																						
71-80	43	27																																						
81-90	46	29																																						
91-100	27	17																																						

A. Student Learning Outcomes	B. Assessment Measures	C. Performance Standards	D. Sampling Methods	E. Sample Size (N)	F. Results	G. Conclusions	H. Performance Standards Met (Y/N)
	1c. Pre/Post Test Elementary Algebra Plus with four course objective areas of Order of Operations, Algebraic Expressions, Algebraic Equations, and Applications.	1c. 70% of the students taking both the pretest and the posttest in Elementary Algebra Plus will improve at least 30%.	1c. Students took the posttest in day, evening, and online sections taught by both fulltime and adjunct faculty on all three campuses in the summer and fall semesters.	1c. 124 students (Online-33 On campus-91)	1c. Pretest results: % score # % 0-10 16 13 11-20 28 23 21-30 39 31 31-40 24 19 41-50 10 8 51-64 6 5 65-70 1 1 71-80 0 0 > 80 0 0	1c. Overall 72% of the students taking both the pretest and the posttest improved more than 30%. Out of the online sections, only 52% of the students improved at least 30%. Out of the on campus sections, 79% of the students improved at least 30%. Online sections alone did not meet the standards.	1c. Y
	1d. Pre/Post Test Intermediate Algebra with four course objective areas of Slope & Line, Functions, Systems & Equations, and Quadratic Equations.	1d. 70% of the students taking both the pretest and the posttest in Intermediate Algebra will improve at least 30%.	1d. Students took the posttest in day, evening, and online sections taught by fulltime and adjunct faculty on all three campuses in summer and fall semesters.	1d. 161 students (Online 27 On campus-134)	1d. Pretest results: % score # % 0-10 22 14 11-20 34 21 21-30 42 26 31-40 32 20 41-50 20 12 51-64 4 2 65-70 3 2 71-80 4 2 81-90 0 0 91-100 0 0	1d. Overall 84 % of the students taking both the pretest and the posttest improved more than 30%. Out of the online sections, 67% of the students improved at least 30%. Out of the on campus sections, 87% of the students improved at least 30%. Online sections alone did not meet the standards.	1d. Y
	1e. Based on results in the Entry-Level Assessment Through Fall 2012. Report	1e. Students completing Elementary Algebra and enrolling in Intermediate	1e. Student success (A, B, C) was tracked from Elementary Algebra through	1e. Requiring remediation: n=117 Waived or	1e. 64% of the students completing Elementary Algebra made a C or higher in Intermediate Algebra in the Fall of 2012 compared to 54% of the students who	1e. a 9-year trend continues where students remediate through Elementary Algebra improve their math skill deficiencies to such an extent that they out perform	1e. Y

A. Student Learning Outcomes	B. Assessment Measures	C. Performance Standards	D. Sampling Methods	E. Sample Size (N)	F. Results	G. Conclusions	H. Performance Standards Met (Y/N)
	compiled by Office of Accountability and Academics.	Algebra will make a grade of C or higher at the same percentage rate or higher than those students who waive/clear remediation.	Intermediate Algebra for Fall 2012 students.	cleared remediation: n=289	made a grade of C or better in Intermediate Algebra that waived or cleared remediation requirement.	on a competitive level students not requiring the first course in the remediation sequence.	
	1f. Based on results in the Entry-Level Assessment through Fall 2012. Report compiled by Office of Accountability	1f. Students completing Int. Alg. And enrolling in College algebra (Math 1513) or Math for Critical Thinking (MATH 1503) in the next semester will make a grade of C or higher at the same percentage rate or higher than those students who waive/clear remediation.	1f. Student success (A, B, C) was tracked from Intermediate Algebra through both College Algebra and MATH 1503: n=4	1f. Requiring remediation: MATH 1513: n=106 MATH 1503: n=4	1f. 49% of the students completing Intermediate Algebra made a C or higher in College Algebra in fall 2012 compared to 56% of those students who made a grade of C or better that waived or cleared remediation requirement. 100% of the students completing Intermediate Algebra made a C or higher in Math for Critical Thinking in fall 2012 compared to 49% of those students who made a grade of C or better that waived or cleared remediation requirement.	1f. These data continue a 9-year trend for Students in College Algebra after completing Intermediate Algebra. They are consistently performing below (about 7%) compared to those who waive or clear remediation.	1f. N

A. Student Learning Outcomes	B. Assessment Measures	C. Performance Standards	D. Sampling Methods	E. Sample Size (N)	F. Results	G. Conclusions	H. Performance Standards Met (Y/N)
2) Students will demonstrate mastery of scientific principles necessary for entry-level collegiate study.	Not been assessed due to unavailability of BIOL0123 data.						

PART 5

Proposed Instructional Changes Based on Conclusions Drawn from Evidence Presented Above

State any proposed instructional or assessment changes to be implemented for the next academic year. They should be based on conclusions reported in Part 4 (above) or on informal activities, such as faculty meetings and discussions, conferences, pilot projects, textbook adoption, new course proposals, curriculum modifications, etc. Explain the rationale for these changes and how they will impact student learning and other considerations, such as curriculum, degree plan, assessment process, or budget. If no changes are planned, simply state "No changes are planned."

Student Learning Outcomes	Instructional or Assessment Changes	Rationale for Changes	Impact of Planned Changes on Student Learning and Other Considerations.
No changes are planned at this point.			

PART 6

Shared Pedagogical Insight that Improves Student Learning or Classroom Engagement

(OPTIONAL) If your department or a faculty member has developed a method or technique of teaching that seems especially effective in improving student learning or student engagement in the classroom, please provide a brief description below. More detail can be communicated during the face to face peer review session.

Description

PART 7 (A & B)

Assessment Measures and Faculty Participation

A. Assessment Measures:

- 1) How many different assessment measures were used? Three measures per course.
- 2) List the direct measures (see rubric): (1) Percentage of students passing the posttest at 65% or higher and (2) the percentage of students improving 30% from pretest to posttest in each of the three courses.
- 3) List the indirect measures (see rubric): Students success in subsequent college-level coursework.

B. 1) Provide the names and signatures of all faculty members who contributed to this report and indicate their respective roles:

Faculty Members	Roles in the Assessment Process (e.g., collect data, analyze data, prepare report, review report, etc.)	Signatures
Roya Namavar	Math Faculty – collect data	<i>Roya Namavar</i>
Evaion St. John	Math Faculty – collect data	deceased
Dr. Sukitha Vidurupola	Math Faculty, collect data, analyze data, prepare report	<i>Sukitha Vidurupola</i>

2) Reviewed by:

Titles	Names	Signatures	Date
Department Head	Dr. Jamie M. Graham	<i>Jamie M. Graham</i>	2/4/16
Dean	Dr. Keith Martin		

RUBRIC FOR STUDENT LEARNING STUDENT LEARNING REPORT

1) A. Are the school, department and program missions clearly stated?

Exemplary	Established	Developing	Undeveloped
The program, department, and school missions are clearly stated.	The program, department, and school missions are stated, yet exhibit some deficiency (e.g., are partial or brief).	The program, department, and school missions are incomplete and exhibit some deficiency (e.g., are partial or brief).	The program, department, and school missions are not stated.

B. Are student learning outcomes and department purposes aligned with university commitments and school purposes?

Exemplary	Established	Developing	Undeveloped
Student learning outcomes and department purposes are aligned with university commitments and school purposes.	Student learning outcomes and department purposes demonstrate some alignment with university commitments and school purposes.	Student learning outcomes and department purposes demonstrate limited alignment with university commitment and school purposes.	Student learning outcomes and department purposes do not demonstrate alignment with university commitment and school purposes.

2) How well did the department incorporate instructional or assessment changes from last year's report or from other assessment activities?

Exemplary	Established	Developing	Undeveloped
All planned changes were listed, whether they were implemented or not, and their impact on curriculum or program budget was discussed thoroughly.	Most planned changes were listed, and their status or impact on curriculum or program budget was discussed.	Some planned changes were listed, and their status or impact on curriculum or program budget was not clearly discussed.	No planned changes were listed, and their status or impact on curriculum or program budget was not discussed.

3) Did the department include peer review feedback and provide rationale for implementing or not implementing suggestions?

Exemplary	Established	Developing	Undeveloped
All reviewer feedback was listed, and for each suggestion a clear	Most reviewer feedback was listed, and for most suggestions a	Some reviewer feedback was listed, and for some suggestions a	Feedback from reviewers was not included.

rationale was given for its being implemented or not.	rationale was given for their being implemented or not.	rationale was given for their being implemented or not.	
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4) A. Are the student learning outcomes listed and measurable?

Exemplary	Established	Developing	Undeveloped
All student learning outcomes are listed and measurable in student behavioral action verbs (e.g., Bloom's Taxonomy).	Most student learning outcomes are listed and measurable in student behavioral action verbs (e.g., Bloom's Taxonomy).	Some student learning outcomes are listed and measurable in student behavioral action verbs (e.g., Bloom's Taxonomy).	Student learning outcomes are either not listed or not measurable.

B. Are the assessment measures appropriate for the student learning outcomes?

Exemplary	Established	Developing	Undeveloped
All assessment measures are appropriate to the student learning outcomes.	Most assessment measures are appropriate to the student learning outcomes.	Some assessment measures are appropriate to the student learning outcomes.	None of the assessment measures are appropriate to the student learning outcomes.

C. Do the performance standards provide a clearly defined threshold at an acceptable level of student performance?

Exemplary	Established	Developing	Undeveloped
All performance standards provide a clearly defined threshold at an acceptable level of student performance.	Most performance standards provide a clearly defined threshold at an acceptable level of student performance.	Some of the performance standards provide a clearly defined threshold at an acceptable level of student performance.	No performance standards provide a clearly defined threshold at an acceptable level of student performance.

D. Is the sampling method appropriate for all assessment measures?

Exemplary	Established	Developing	Undeveloped
The sampling methodology is appropriate for all assessment measures.	The sampling methodology is appropriate for most assessment measures.	The sampling methodology is appropriate for some assessment measures.	The sampling methodology is appropriate for none of the assessment measures.

E. Is the sample size listed for each assessment measure?

Exemplary	Established	Developing	Undeveloped

Sample size was listed for all assessment measures.	Sample size was listed for most assessment measures.	Sample size was listed for some assessment measures.	Sample size was not listed for any assessment measures.
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F. How well do the data provide clear and meaningful overview of the results?

Exemplary	Established	Developing	Undeveloped
For all student learning outcomes the results were clear, more than a single year's results were included, and meaningful information was given that reveals an overview of student performance.	For most student learning outcomes the results were clear, more than a single year's results were included, and meaningful information was given that reveals an overview of student performance.	For some student learning outcomes the results were clear, more than a single year's results were included, and meaningful information was given that reveals an overview of student performance.	For none of the student learning outcomes were the results clear, more than a single year's results were included, and meaningful information was given that reveals an overview of student performance.

G. Are the conclusions reasonably drawn and significantly related to student learning outcomes?

Exemplary	Established	Developing	Undeveloped
All conclusions are reasonably drawn and significantly based on the results and related to the strengths and weaknesses in student performance.	Most conclusions are reasonably drawn and significantly based on the results and related to the strengths and weaknesses in student performance.	Some conclusions are reasonably drawn and significantly based on the results and related to the strengths and weaknesses in student performance.	No conclusions are reasonably drawn and significantly based on the results or related to the strengths and weaknesses in student performance.

H. Does the report indicate whether the performance standards were met?

Exemplary	Established	Developing	Undeveloped
Stated for all performance standards.	Stated for most performance standards.	Stated for some performance standards.	Not stated for any performance standard.

- 5) How well supported is the rationale for making assessment or instructional changes? The justification can be based on conclusions reported in Part 4 or on informal activities, such as faculty meetings and discussions, conferences, pilot projects, textbook adoption, new course proposals, curriculum modifications, etc. Explain the rationale for these changes and how they will impact student learning and other considerations, such as curriculum degree plan, assessment process, or budget.

Exemplary	Established	Developing	Undeveloped
All planned changes are	Most planned changes are	Some planned changes are	No planned changes are

specifically focused on student learning and based on the conclusions. The rationale for planned changes is well grounded and convincingly explained.	specifically focused on student learning and based on the conclusions. The rationale for planned changes is mostly well grounded and convincingly explained.	specifically focused on student learning and based on the conclusions. The rationale for planned changes is lacking or is not convincingly explained.	specifically focused on student learning and based on the conclusions. There is no rationale.
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6) Did the faculty include at least one teaching technique they believe improves student learning or student engagement in the classroom?

Yes	No		
The faculty has included at least one teaching technique they believe improves student learning or student engagement in the classroom.	The faculty has not included any teaching techniques they believe improve student learning or student engagement in the classroom.		

7) A. How well did the faculty vary the assessment measures?

Exemplary	Established	Developing	Undeveloped
Assessment measures vary and include multiple direct measures and at least one indirect measure. The number of measures is consistent with those listed.	Assessment measures vary, but they are all direct. The number of measures is consistent with those listed.	Assessment measures do not vary or are all indirect. There is some inconsistency in the number of measures recorded and the total listed.	Assessment measures are not all listed or are listed in the wrong category. The total number of measures is not consistent with those listed.

B. Does the list of faculty participants clearly describe their role in the assessment process?

Exemplary	Established	Developing	Undeveloped
The faculty role is clearly identified and it is apparent that the majority of the faculty participated in the process. The roles are varied.	The faculty role is identified and it is apparent that the majority of the faculty participated in the process. The roles are not varied.	The faculty roles are not identified. Few faculty participated.	The faculty roles are not identified. Faculty participation is not sufficiently described to make a determination about who participated.

EXPLANATION & EXAMPLES OF DIRECT AND INDIRECT EVIDENCE

DIRECT EVIDENCE of student learning is tangible, visible, self-explanatory evidence of exactly what students have and haven't learned. Examples include:

- 1) Ratings of student skills by their field experience supervisors.
- 2) Scores and pass rates on licensure/certification exams or other published tests (e.g. Major Field Tests) that assess key learning outcomes.
- 3) Capstone experiences such as research projects, presentations, oral defenses, exhibitions, or performances that are scored using a rubric.
- 4) Written work or performances scored using a rubric.
- 5) Portfolios of student work.
- 6) Scores on locally-designed tests such as final examinations in key courses, qualifying examinations, and comprehensive examinations that are accompanied by test blueprints describing what the tests assess.
- 7) Score gains between entry and exit on published or local tests or writing samples.
- 8) Employer ratings of the skills of recent graduates.
- 9) Summaries and analyses of electronic class discussion threads.
- 10) Student reflections on their values, attitudes, and beliefs, if developing those are intended outcomes of the program.

INDIRECT EVIDENCE provides signs that students are probably learning, but the evidence of exactly what they are learning is less clear and less convincing. Examples include:

- 1) Course grades.
- 2) Assignment grades, if not accompanied by a rubric or scoring guide.
- 3) For four year programs, admission rates into graduate programs and graduation rates from those programs.
- 4) For two year programs, admission rates into four-year institutions and graduation rates from those programs.
- 5) Placement rates of graduates into appropriate career positions and starting salaries.
- 6) Alumni perceptions of their career responsibilities and satisfaction.
- 7) Student ratings of their knowledge and skills and reflections on what they have learning over the course of the program.
- 8) Those questions on end-of-course student evaluations forms that ask about the course rather than the instructor.
- 9) Student/alumni satisfaction with their learning, collected through surveys, exit interviews, or focus groups
- 10) Honors, awards, and scholarships earned by students and alumni.

Suskie, L. (2004). *Assessing Student Learning: A Common Sense Guide*. Anker Publishing Company. Bolton, MA