

Clarion University

Institutional and Student Learning Assessment Committee (ISLAC)

Guide to Student Learning Outcomes Assessment

Updated Fall 2018

Table of Contents

Introduction.....	3
ISLAC Overview.....	4
The Student Learning Assessment Process.....	5-8
• Outcomes.....	5
• Assessment Measures and Methodologies.....	6
• Results/Findings.....	7
• Analysis of Results.....	8
• Action Plan(s).....	8
• Progress on the Action Plan.....	8
Program Assessment Report Review	9
Appendices	10
A. Bloom's Taxonomy Staircase.....	11
B. Bloom's Taxonomy Staircase.....	12
C. University-Wide Student Learning Outcomes.....	13
D. Action Plan Template.....	16
E. Example Program Assessment Report	18

Acknowledgements: The following guide was adapted from the *Overview of Annual Academic Program Assessment*, UC Merced and *Institutional Effectiveness Manual*, The University of North Carolina at Asheville.

Introduction

Fundamentally, Student Learning Outcomes Assessment at Clarion University is a systematic reflection on teaching and learning, which provides a foundation for our growth as a community of educators. In a time of ever-increasing public accountability, doing what we love depends in large part on our ability to clearly and effectively demonstrate what we do, that we are continually striving to be better at what we do, and most importantly that our students benefit from our efforts.

Why we do it

Annual program assessment promotes regular engagement in evidence-based planning in support of the faculty's goals for student learning and success. Assessment is more than a matter of compliance, it is an intellectual endeavor in which we gather and analyze data, make informed and strategic adjustments to our practices, and thus, improve student learning on our campus. This process can also help us align programs with the University's mission and strategic goals, further strengthening our educational community.

How we do it

In keeping with the faculty role in creating the curriculum, the particular measures and methods for assessing student learning are determined by the program's faculty. However, the overarching expectations as recommended by [Middle States Commission of Higher Education](#) are shared by all programs. In brief, these include:

- Craft clear and measurable student learning outcomes and develop procedures that measure the extent to which those outcomes are achieved.
- Collect evidence and produce results that yield actionable insights into student learning in relation to the expected program learning outcomes.
- Develop explicit programmatic criteria and standards to evaluate the evidence.
- Share results and engage as a faculty in discourse about teaching and learning.
- Identify and implement actions to improve student learning.

What we do with it

The faculty from each program assess student learning of *at least one* program learning outcome annually. Measures, methods, results, actions plans and related resource implications are summarized in a formal report and submitted annually to the chair of ISLAC. This work is guided by the program's assessment coordinator, with support from the college-level assessment team leader. Each Program Assessment Report is then reviewed by a team of faculty and staff that use a structured, rubric-based process to provide each program with constructive and timely feedback. By engaging in this process of peer review, it is our goal for all programs to consistently practice an "exemplary" level of assessment. We are moving toward that goal, recognizing that each program learning outcome poses its own unique assessment challenges.

ISLAC Overview

The Institutional and Student Learning Assessment Committee (ISLAC) is a presidentially appointed, university-wide committee dedicated to advancing the assessment of institutional effectiveness and student learning outcomes at Clarion University. ISLAC is chaired by the Coordinator for Assessment and is comprised of sub-committees that are focused on particular assessment efforts, including but not limited to, the assessment of first-year courses, of general education courses and of academic programs.

Mission:

The Institutional and Student Learning Assessment Committee (ISLAC) oversees assessment of institutional effectiveness and student learning in all programs.

Vision:

ISLAC will institute, promote, and maintain a university-wide culture of reflective assessment to ensure that Clarion University takes its place as a leader in delivering high-impact educational practices to benefit students, faculty, employers, and community partners.

ISLAC's responsibilities include:

1. Monitor and evaluate university-wide programmatic assessment, the focus of which is on the continual improvement of teaching and learning and its support functions, as well as fulfilling our accreditation requirements regarding assessment.
2. Develop/adopt research-based and best practice guidelines that promote effective integration of outcome-based assessment practices at the program level that help achieve the University's mission and strategic goals.
3. Make recommendations to the provost and academic deans concerning student learning outcomes assessment policy and effective linkage of learning outcomes assessment with strategic planning, budgeting, and resource allocation.
4. Review assessment and continuous improvement efforts across the university and make recommendations to the President and vice-presidents regarding their specific divisions.
5. Work with the Departmental/Program Assessment Coordinators to develop and submit annual Program Assessment Reports.
6. Coordinate a Program Assessment Report Evaluation Team that provides constructive and timely feedback to programs/departments following careful and critical review of Program Assessment Reports.
7. Report to the campus community and other stakeholders program assessment activities and findings.
8. Oversee the administration of the university assessment information management system that tracks program-level learning outcomes assessment activities and the use of results for program improvement purposes.

The Student Learning Assessment Process

At the program level, it is a process designed to determine the extent to which a program is achieving its student learning goals. Student learning outcomes assessment is *not* an evaluation of courses or faculty teaching (and cannot be used as such under the current guidelines of the CBA), *rather*, it is a continuous improvement process or best practice of setting goals and outcomes, analyzing and reporting progress/issues, and using reported data with the intention of improving student learning.

The following pages describe the Student Learning Outcomes Assessment process at Clarion University of Pennsylvania. These requirements represent the minimum for a program to meet the standards established by the Institutional and Student Learning Assessment Committee (ISLAC). Any program may do more than required if they so choose, but these guidelines have been selected with the intention of creating a system that is flexible, responsive to our community and culture, inclusive in nature, and which encourages departments/programs to follow the *spirit* of student learning assessment rather than mere *compliance*.

The Student Learning Outcomes Assessment process for academic programs at Clarion University consists of six main components:

- **Outcomes** - *specific statements that articulate the knowledge, skills, abilities, and dispositions students should gain or improve through engagement in the academic program or learning experience.*
- **Assessment Measures and Methodologies** - *the variety of measures used to evaluate each outcome and the means of gathering data.*
- **Results** - *a concise summary of the results gathered from a given assessment measure.*
- **Analysis of Results** - *a thorough yet concise examination and interpretation of the results gathered from a given assessment measure.*
- **Action Plan(s)** - *actions to be taken to improve the program or assessment process based on analysis of results.*
- **Progress on Action Plan** - *a summary of actions that have been taken or are planned to be taken to improve the program or assessment process based on analysis of results. Essentially this is an update on the Action Plan from the previous year.*

Outcomes

Outcome – refers to the impact of a program’s activities on progress toward student learning achievement targets. The outcome should not describe what the program does, rather it should describe what students learn/achieve.

Features of exceptional student learning outcomes:

- All are clear and specific with rich description of the content/skill/ or disposition.

- All use precise action verbs (demonstrate, create, analyze, etc. rather than vague verbs like know or understand). Please see **Appendix B** for examples.
- Specifies whom should be assessed (e.g. graduating seniors, second semester juniors, etc.).
- Addresses both discipline-specific learning and University-Wide Learning Outcomes*.

University-Wide Learning Outcomes:

1. Students will mature in their understanding of the creative, natural, social, and cultural forces that shape the world.
2. Students will develop intellectual inquiry and problem-solving skills, leading to actual world practice.
3. Students will commit to personal, professional, and civic responsibility.
4. Students will integrate and apply their learning across general and specialized fields.

These University-Wide Learning Outcomes were recommended by the General Education Council and Faculty Senate, and approved by the President in 2014.

* The college deans have developed a list of skills and dispositions with learning criteria adopted from those found in AAC&U VALUE Rubrics (<https://www.aacu.org/value/rubrics>) that align and meet these outcomes. Please refer to **Appendix B** to see how you may align your program outcomes with those of the University.

Assessment Measures and Methodologies

This is *what* you will measure and *how* you will measure it to determine attainment of expected outcomes.

Features of exceptional measures and methodologies include:

- All outcomes assessed using multiple measures, of which at least 1 is a direct measure. The most effective strategies involve complementary lines of *direct* and *indirect* evidence designed to represent the cumulative impact of the program's curriculum on student learning and success at a given point in the degree. Visit <http://msche.org/publications/examples-of-evidence-of-student-learning.pdf> for examples of direct and indirect assessment measures.
- Instruments (e.g. rubrics) reflect good research methodology/ current best practices with explicit criteria. Visit <https://www.aacu.org/value/rubrics> to view rubrics that are research-based and reflect current best practices.
- Data collection and evaluation processes described in excellent detail - includes who was involved, sample size, rating/scoring procedures, etc.
- All relevant supporting documents (e.g. rubrics, assignments, work samples*, surveys, rater calibration procedures etc.) are provided.
- Identifies one or more meaningful *achievement targets/criteria for success*** - based on previous results or existing standards; these are specific, measurable and aligned with outcomes. ***The purpose of this step is NOT to simply establish whether the targets have been met or not met, rather to serve as starting point for program faculty to discuss what needs to be worked on or improved.***

* Samples of student work (reports, exams, quizzes, etc.) that were evaluated as part of the assessment process are strongly encouraged to be submitted. These can be all samples or a subset of the work evaluated. The work samples must not have any grades or comments. If graded prior

to submission, grades must be redacted. Student names may be present on the work sample (or may be redacted), but students must be informed that their work is being used for program assessment purposes and that the results will not influence the assignment or course grades. Student names must not appear in the results. Additionally, work samples collected and submitted to Compliance Assist may be used as work samples to assess the same or other outcomes in future assessment cycles for a period of up to two additional years.

** The criterion of success or achievement target is the specific value on your measurement that you consider as “successful” attainment of the expected outcome. You should set your criteria prior to collecting results and if possible, it is based on previous assessment results or existing national/accreditation standards. If actual results are far from your criteria, you may need to adjust your criteria or you may need to change something in the curriculum in order to achieve the expected outcome. Remember, assessment is not about perfection, rather, it is about continuous improvement. Some sample criteria:

- 100% of students graduating with a B.A. Theoretical Discovery degree will achieve a 4 (4 point scale) in all categories defined in the “Problem Solving” assessment rubric.
- 80% of Theoretical Discovery students will pass the National Exam on the first attempt.
- Consensus of departmental faculty that students have or have not achieved criterion.

In order to keep the assessment process sustainable, make sure that the data you are collecting is data you can use to improve student learning. Data collection should be a regular activity and depending on your expected outcomes, assessment measures, and faculty workload, you may collect data on a monthly basis, each semester, or annually. Nevertheless, data must be collected on at least one outcome per academic year and a program assessment report submitted in June of each calendar year.

Assessment Results

These results should be concisely written/presented, but provide all necessary information. Specifically, any person who views your results should be able to determine for himself or herself whether you did or did not meet your criterion/target.

Features of exemplary assessment results include:

- Provides solid evidence that achievement targets were met, partially met, or not met.
- All relevant supporting documents (data sets, graphs, tables, etc.) are included.

Examples of ineffective results statements:

- Met Criterion
- Goal achieved
- No change necessary
- Since our measurement of the accomplishment of outcome 1a exceeded our expectations, no recommendations for adjustments are put forth at this time.

None of these allow a reader to determine for themselves if the criterion was met.

Examples of acceptable results statements:

- 58.5% of juniors reported that they “Strongly Agreed”
- 87% of seniors scored a 6 or better on the rubric

- 93% of students rated the structural adequacy of the Theoretical Discovery program as 4 or 5; mean rating of 4.23 (out of 5)

Although succinct, these statements allow the reader to determine if the criterion was met. The length of these statements really depends on the wording of your outcome, the assessment measures, and what the criterion/target is.

Analysis of Results

This is where you scrutinize and interpret your results, focusing on areas of strength/progress and or areas for improvement in your program *and* your assessment practices.

Features of exceptional analysis of results include:

- In-depth analysis and understanding of data evident.
- Strengths/progress revealed by assessment are well discussed and supported by results; compares new findings to past trends, as appropriate.
- Identifies one or more areas that need attention (where applicable).

As programs advance through cycles of assessment, ISLAC will share examples of exceptional analysis of results (using direct & indirect measures) from different disciplines to aid in the evaluation, presentation and interpretation of program assessment data.

Action Plan(s)

The purpose of Student Learning Outcomes Assessment is to provide meaningful information in order to determine if modifications are needed to make your program more effective. At a *minimum* each outcome not met needs an action plan for improvement. Additionally, outcomes that were met, provide an opportunity for you to further improve what you are already doing well. Action plans may modify *what* you do, *how* you do it, your organizational structure, work assignments, your mission, outcomes, and/or your assessment measures, data collection process or criterion/target. Be sure to include deadlines for completion and identify responsible parties/individuals for following through on the action. If the planned action requires resources, discuss: 1) whether these are new or reallocated resources, 2) how those resources will be used, and 3) what is planned if the resources are unavailable (i.e., lowering a target might be necessary). Lastly, action plans will vary widely from program to program based on your outcome, results and what your program decides is appropriate in order to improve student learning. To aid you in developing an action plan, please see **Appendix D**.

Features of exceptional action plans include:

- Plan(s) describe how to optimally use results to strengthen student learning/ curriculum/ assessment plan.
- Defines logical "next steps." This may include areas related to student learning and/or the assessment process, as necessary.
- When necessary, a reasonable target date for implementation is identified.
- Identifies a responsible party to oversee the action.
- As required, provides justifiable and relevant resources to support proposed actions.
- Action plan(s) is/are ambitious, yet manageable.

Progress on the Action Plan

As noted above, the purpose of Student Learning Outcomes Assessment is to make changes to make programs more effective. Therefore, in the 2016-2017 AY, we started asking programs to return to their assessment findings and action plan from the previous year and to discuss how they have used

the previous year's results to essentially enact the proposed action plan OR how they plan to do so. So the difference is that the action plan of the report says, *this is what we will do* and the progress on the action plan section looks back to the previous year and says, *this is what we have done OR are planning to do with last year's data.*

Program Assessment Report Review

Once Program Assessment Reports are complete and submitted to the chair of ISLAC by the June deadline, a team of three peer reviewers that have been trained in the report review process will engage in a rubric-based evaluation of program reports. Each team member will individually review each program report and then the team will convene during the summer to discuss the reports, establish a final team review in each rubric category, and provide specific feedback to each program. Once the review is complete, a report will be provided for each program. Program assessment results will be shared with the campus community and other interested stakeholders. For an Example Program Assessment Report that meets most of the "Exemplary" requirements, please see **Appendix E**. But please note that this report was completed in 2015. Therefore, it does not address the section titled "Progress on the Action Plan". We are also no longer using Compliance Assist, so the template and format is not what we will be using starting Spring 2019.



Appendices

Appendix A

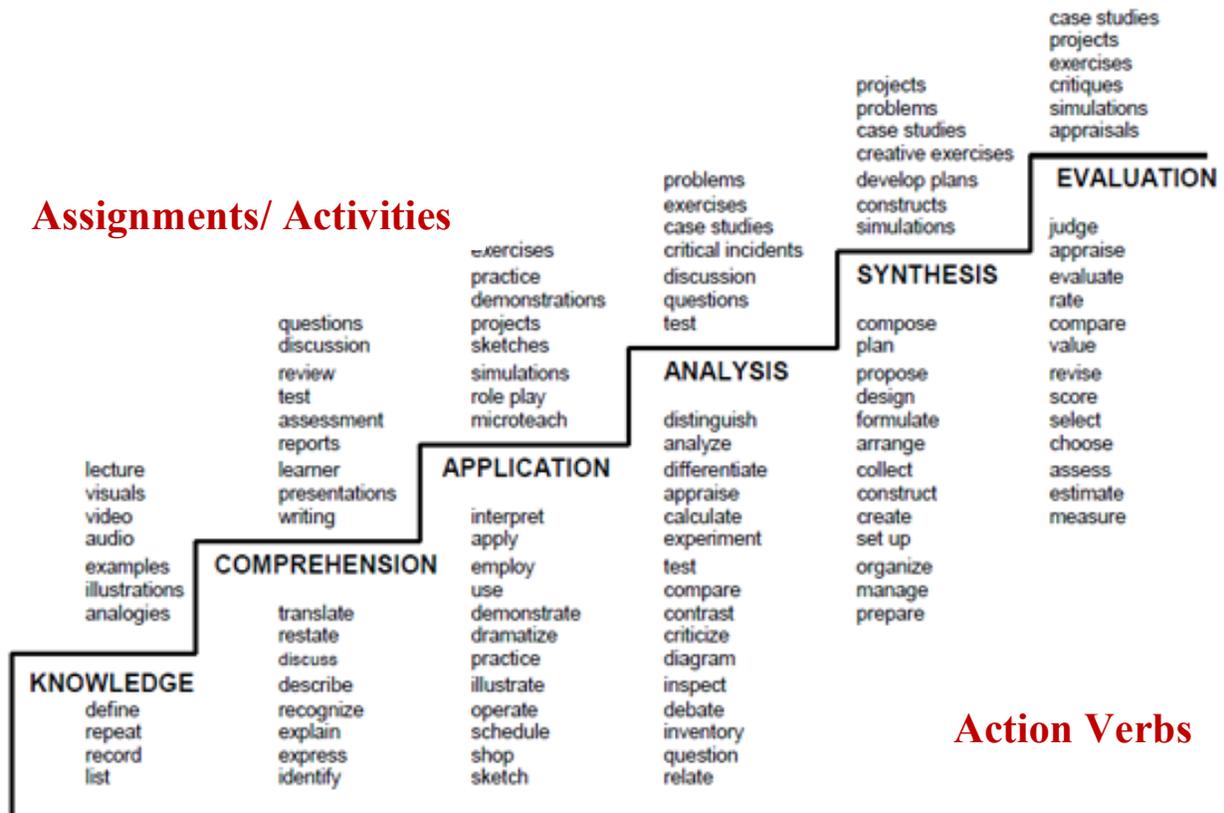
Departmental/Program Assessment Coordinator Responsibilities

- The assessment coordinator(s) work primarily with her or his department/program members to develop solid, realistic, and streamlined assessment plans to improve student learning and instructional quality.
- The coordinators(s) may consult with departments, programs, and instructors at any phase of the assessment process (e.g. to identify or develop outcomes, assessment instruments, strategies to implement assessment, analysis of results, action plans to improve student learning).
- The coordinators(s) ensure the timeliness of assessment of department/program/general education distribution offerings, program outcomes, and ensure that assessment of student learning is completed, documented, and reported to the chair of ISLAC.
- Coordinator(s) participate in professional development and share what they have learned with colleagues.
- Coordinator(s) serve as a liaison between department/program and ISLAC.

Appendix B

Bloom's Taxonomy Staircase

Suggested Instructional Strategies for Use with Each Level of Bloom's Taxonomy



Appendix C

Example Skills & Dispositions Aligned to University-Wide Outcomes

1. Students will mature in their understanding of the creative, natural, social and cultural forces that shape the world.

A. Intercultural Knowledge and Competence

- a. **Knowledge- Knowledge of Cultural Worldview Frameworks:** Demonstrates adequate understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.

B. Global Learning

- a. **Cultural Diversity:** Analyzes substantial connections between the worldviews, power structures, and experiences of multiple cultures historically or in contemporary contexts, incorporating respectful interactions with other cultures.
- b. **Personal and Social Responsibility:** Analyzes the ethical, social, and environmental consequences of global systems and identifies a range of actions informed by one's sense of personal and civic responsibilities.

C. Foundations and Skills for Lifelong Learning

- a. **Curiosity:** Explores a topic in depth, yielding insight and/or information indicating interest in the subject.
- b. **Reflection:** Reviews prior learning (past experiences inside and outside of the classroom) in depth, revealing fully clarified meanings or indicating broader perspectives about educational or life events.

2. Students will develop intellectual inquiry and problem solving skills, leading to praxis.

A. Creative Thinking

- a. **Solving Problems:** Having selected from among alternatives, develops a logical, consistent plan to solve the problem.

B. Critical Thinking

- a. **Student's position (perspective, thesis, hypothesis):** Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/hypothesis).
- b. **Conclusions and related outcomes (implications and consequences):** Conclusion is logically tied to a range of information, including opposing viewpoints, related outcomes (consequences and implications) are identified clearly.

C. Information Literacy

- a. **Evaluate Information and its Sources Critically:** Choose a variety of information sources appropriate to the scope and discipline of the research question. Selects sources using multiple criteria (such as relevance to the research question, currency, and authority).
- b. **Access and Use Information Ethically and Legally:** Students use correctly three of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrate a full understanding of the ethical and legal restrictions on the use of published, confidential, and/or proprietary information.

D. Oral Communication

- a. **Delivery:** Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting and speaker appears comfortable.
- b. **Central Message:** Central message is clear and consistent with the supporting material.

E. Problem Solving

- a. **Define Problem:** Demonstrates the ability to construct a problem statement with evidence of most relevant contextual factors, and problem statement is adequately detailed.
- b. **Propose Solutions/ Hypotheses:** Proposes one or more solutions/hypotheses that indicates comprehension of the problem. Solutions/hypotheses are sensitive to contextual factors as well as the one of the following: ethical, logical, or cultural dimensions of the problem.

F. Quantitative Literacy

- a. **Application/ Analysis:** Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.

G. Reading

- a. **Comprehension:** Uses the text, general background knowledge, and/or specific knowledge of the author's context to draw more complex inferences about the author's message and attitude.
- b. **Analysis:** Identifies relations among ideas, text structure, or other textual features, to evaluate how they support an advanced understanding of the text as a whole.

H. Written Communication

- a. **Context of and Purpose for Writing:** Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).
- b. **Control of Syntax and Mechanics:** Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.

I. Inquiry & Analysis

- a. **Analysis:** Organizes evidence to reveal important patterns, differences, or similarities related to focus.
- b. **Conclusions:** The ability to systematically explore complex issues through the collection and analysis of data/evidence that results in informed conclusions.

3. Students will commit to personal and professional ethical responsibility.

A. Ethical Reasoning

- a. **Ethical Self-Awareness:** Student discusses in detail/analyzes both core beliefs and the origins of the core beliefs.
- b. **Ethical Issue Recognition:** Student can recognize ethical issues when issues are presented in a complex, multilayered (gray) context OR can grasp cross-relationships among the issues.

B. Civic Engagement

- a. **Civic Action and Reflection:** Demonstrates independent experience and team leadership of civic action, with reflective insights or analysis about the aims and accomplishments of one's action.

4. Students will integrate and apply their learning across general and specialized fields.

A. Integrative Learning

- a. **Integrated Communication:** Fulfills the assignment(s) by choosing a format, language, or graph (or other visual representation) to explicitly connect context and form, demonstrating awareness of purpose and audience.

B. Teamwork

- a. *Individual Contributions Outside of Team Meetings:*** Completes all assigned tasks to deadline: work accomplished is thorough, comprehensive, and advances the project.
- b. *Fosters Constructive Team Climate:*** Supports a constructive team climate by doing any three of the following:
 - i.** Treats team members respectfully by being polite and constructive in communication.
 - ii.** Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work.
 - iii.** Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.
 - iv.** Provides assistance and/or encouragement to team members.

Appendix D

Action Plan Template

Purpose: To create a “script” for your improvement efforts and support implementation.

Directions: Using this form as a template, develop an action plan for each goal identified through the assessment process. Modify the form as needed to fit your unique context.

Goal:

Results/Accomplishments:

Action Steps <i>What Will Be Done?</i>	Responsibilities <i>Who Will Do It?</i>	Timeline <i>By When? (Day/Month)</i>	Resources <i>A. Resources Available</i> <i>B. Resources Needed (financial, human, political & other)</i>	Potential Barriers <i>A. Challenges Internal to Program</i> <i>B. Challenges External to Program</i>	Communications Plan <i>Who is involved?</i> <i>What methods?</i> <i>How often?</i>
Step 1:			A. B.	A. B.	
Step 2:			A. B.	A. B.	
Step 3:			A. B.	A. B.	
Step 4:			A. B.	A. B.	
Step 5:			A. B.	A. B.	

Evidence Of Success (*How will you know that you are making progress? What are your benchmarks?*)

Evaluation Process (*How will you determine that your goal has been reached? What are your measures?*)

Adapted from: http://www.imiaweb.org/uploads/pages/219_5..doc

Appendix E

Example Program Assessment Report

B.S. Biology (BIOL)



Public for this Department and lower

Program: B.S. Biology (BIOL)

Providing Department: Biology and Geosciences

Role: Departmental/Division Assessment Team Leader

**Email Address of
Preparer/Submitter:**

Start: 7/1/2014

End: 6/30/2015

Progress: Completed

Student Learning

Outcome(s) List:

Students graduating with a B.S. Biology degree will be able to:

- articulate when there is a need for information, and be able to identify, locate, evaluate, and effectively and responsibly use and share that information for the problem at hand. (Information Literacy)
- systematically explore complex biological issues through the collection and analysis of data/evidence that results in informed conclusions. (Inquiry and Analysis)
- define a biological question or problem, state and test hypotheses based upon obvious assumptions, design a problem solving strategy/experiment, evaluate the findings, and effectively summarize the results. (Problem solving)
- reason and solve quantitative problems, create sophisticated arguments supported by quantitative evidence, and clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc.), as appropriate. (Quantitative Literacy)
- develop and communicate scientific information through writing. (Written Communication)

**Student Learning
Outcomes Assessed for
Current Academic Year:**

Information Literacy - The ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively and responsibly use and share that information for the problem at hand.

**Direct Assessment
Method(s):**

All faculty in the Department of Biology and Geological Sciences (BIGS) were asked to submit suitable assignments from the 2014-2015 academic year from senior status students for the assessment of the student learning outcome of Information Literacy (IL). In addition to asking for appropriate assignments, the faculty were also asked to submit instructions, rubrics or any other materials provided to the students. Seven BIGS faculty provided a total of sixty-five assignments from senior students representing four programs (majors). Due to the in-depth nature of the assessment, only forty-nine assignments total were evaluated, with twenty-three of those used to assess students in the B.S. BIOL program.

A team of three faculty (one from BIGS and two from Library Science) convened during the spring semester to review the departmentally approved rubric to be used in this assessment and to discuss the assessment process. This rubric (see below), is a modified version of the AAC&U VALUE Rubric for Information Literacy. The AAC&U VALUE Rubrics were developed and tested by teams of faculty experts representing over 100 colleges and universities from across the US and are a well established "best practice" assessment instrument. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of skill/knowledge/proficiency. Three fundamental criteria were approved by BIGS faculty in spring of 2015, but after review of the both the modified and original AAC&U IL VALUE rubric, the review team believed that a fourth criteria should be added. The four criteria assessed were:

1. **Determine** the extent of information needed

2. **Evaluate** information and its sources critically
3. **Use** information effectively to accomplish a specific purpose
4. **Access** and use information ethically and legally

In the rubric, each criteria is divided into four levels of proficiency and it has been agreed upon by BIGS faculty that all students graduating with a B.S. BIOL degree should achieve a "3" or greater in all four IL categories. Please see the rubric for the performance descriptors required to obtain a specific score.

Each member of the three-person review team was provided with all the student assignments and assignment instructions electronically. These items can be viewed in the document library below. Each member reviewed and scored every assignment and recorded their scores in an Excel table. Individual scores were compiled into a single Excel table and a one-way Analysis of Variance (ANOVA) was conducted to determine if the scores reported by each rater for each criterion were significantly different ($P \leq 0.05$). It was discovered that the scores reported by one of the raters was significantly lower for two of the criteria than those reported by the other two raters. Therefore, the raters were asked to discuss their scores and to develop and apply a standardized score to each assignment. The raters developed the following scheme to standardize the results:

- If all the same, report as the *same* number.
- If three in a row, report the *median*. For example, if: 2 3 4, report as 3.
- If two numbers are the same, report the *mode*. However, if the difference between two numbers is greater than 2, then drop/add 1 place value. For example if: 1 1 4, then the score would be 2.
- If all three numbers are different, report the number not recorded. For example, if: 1 3 4, then report as 2.

After careful review of the standardized scores for each assignment, all raters unanimously agreed that the standardized scores applied to each assignment were both fair and representative of student proficiency in each category.

-  Student Assignments
 -  BIOL 341 Gen Micro
 -  [1- Grading scheme for unknowns](#)
 -  [Student1](#)
 -  [Student2](#)
 -  [Student3](#)
 -  [Student4](#)
 -  BIOL 405 Eco Apps
 -  [1- final research paper instructions](#)
 -  [2 - paper evaluation form](#)
 -  [AR](#)
 -  [BC](#)
 -  [BH](#)
 -  [DM](#)
 -  [RH](#)
 -  [RS](#)
 -  BIOL 410 Field Meths in Env Bio
 -  [BC](#)
 -  [BH](#)
 -  [DM](#)
 -  [MK](#)
 -  [Mining data I](#)
 -  BIOL 445 Mol Mech Micro Path
 -  [1 - MMMP essay assignment](#)
 -  [2- CSE-CBE referencing style](#)
 -  [StudentA](#)
 -  [StudentB](#)
 -  [StudentC](#)

- [StudentE](#)
 - [StudentF](#)
 - [StudentG](#)
 - [BIOL 494 Pop Bio](#)
 - [SCA](#)
 - [ES 490 Adv GIS](#)
 - [BIOL 494 Final exam essay](#)
 - [SDM](#)
- [BIGS InfoLit Rubric](#)

Indirect Assessment

Method(s):

During the last week of the spring 2015 semester a senior survey (see below) was sent via email to all BIGS students graduating in either spring or fall of 2015. Completing the survey was voluntary and students were informed that all responses would be kept confidential. The students were incentivized to take the survey by electing to have their email entered into a random drawing for a \$25 VISA gift card. Thirty-two of seventy-two students (44% response rate) completed the survey which asked questions about plans after graduating from Clarion University, perceptions regarding advising, self-perceptions regarding proficiency in the five departmental learning outcomes, and the extent to which certain Clarion experiences contributed to their professional growth.

- [2015 Senior Survey \(Entire\)](#)

Results/Findings:

Direct Evidence of Student Learning

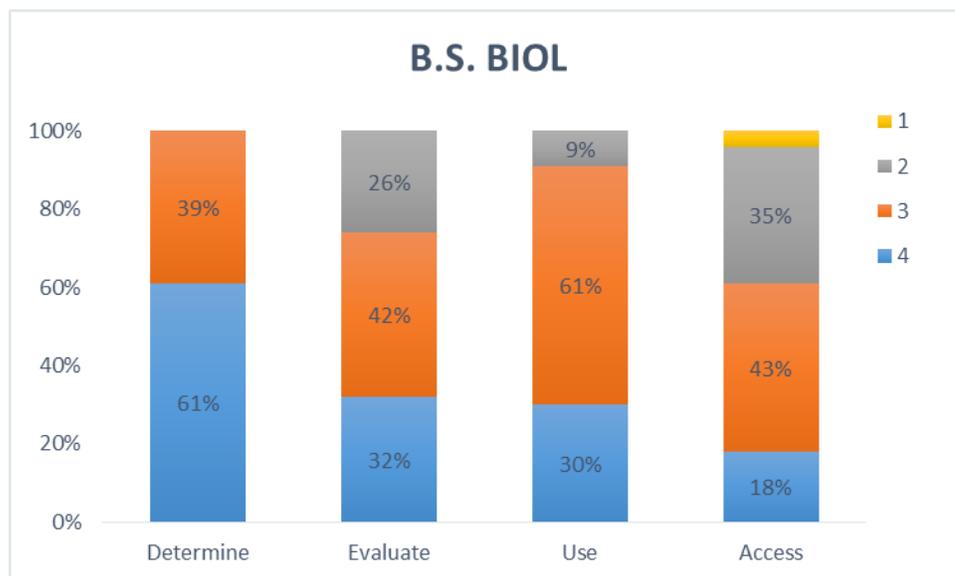
In 2012, six student learning outcomes (SLOs) were approved and adopted by the Department of Biology. In fall 2014, Biology and Geological Sciences (BIGS) merged into a single department and in the spring of 2015, five SLOs were identified as being shared across all disciplines in the new department. These SLOs were approved and adopted by BIGS faculty along with requisite modifications to the language for each unique program in BIGS. As such, this is the first time that Information Literacy (IL) has been assessed for B.S. BIOL, and consequently there are no past results for comparison. However, from these findings it is clear that there are both areas of strength and areas for improvement.

Determine the extent of information needed was the sole criteria in which all B.S. BIOL majors were able to achieve the departmental standard of a rubric score of 3 or better. Over 90% of B.S. BIOL seniors met the standard in their ability to *Use information effectively to accomplish a specific purpose*. Twenty-six percent failed to meet the standard in *Evaluate information and its sources critically* and 39% failed to meet the standard in *Access and use information ethically and legally*.

Table 1. Percentage of B.S. BIOL seniors (n=23) attaining a rubric score of 1, 2, 3 or 4 in the four information literacy categories. Percentages based on standardized scores and the red line indicates the threshold of achievement established by BIGS faculty.

Rubric Score	Determine	Evaluate	Use	Access
4	61%	32%	30%	18%
3	39%	42%	61%	43%
2	0%	26%	9%	35%
1	0%	0%	0%	4%

Figure 1. Percentage of B.S. BIOL seniors (n=23) attaining a rubric score of 1, 2, 3 or 4 in the four information literacy categories. Percentages based on standardized scores.



For individual rater and standardized scores, please refer to Table 2 in the file library below.

Indirect Evidence of Student Learning:

Of the thirty-two survey respondents, sixteen (50%) were B.S. BIOL majors. Of those sixteen, ten responded that they either *Strongly Agree* (62.5%) and another six responded that they *Agree* (37.5%) that as a result of their degree program that "I have developed the ability to identify, locate, evaluate, and effectively and responsibly use and share information that is appropriate for the task at hand." Please refer to Table 3 and Figure 2 in the file library below.

- [BS BIOL Rubric Scores](#)
- [Senior Survey Info Lit Self Percp](#)

Analysis - Strengths:

From this assessment, it is clear that B.S. BIOL seniors are highly capable of determining what information is needed and using the information for the task at hand. Senior B.S. BIOL students indicate that they are confident in these abilities as well.

Procedurally there are several notable strengths. Three raters reviewed student assignments and scored those assignments utilizing a nationally recognized and highly regarded assessment instrument. Steps were taken to ensure inter-rater reliability and to validate assessment results.

Analysis - Program Improvements:

Because this is the first time assessing IL, to date no program improvements have been made that addresses previous or existing issues in the B.S. BIOL curriculum with respect to IL. How best to address the identified areas of deficiency is outlined in the Action Plan section of the report.

Analysis - Required Special/Continued Attention:

Although mean, median and mode calculations indicate that B.S. BIOL majors are achieving the departmental standard of a rubric score of 3 or better for all four IL criteria, many B.S. BIOL seniors have appreciable difficulty evaluating information critically (26%) and accessing/using information ethically and legally (39%). While it is not possible to determine whether these gaps are expanding or contracting, they do warrant careful attention and reassessment once meaningful steps to address deficiencies in the curriculum have been implemented.

Interestingly, all senior B.S. BIOL majors that responded to the Senior Survey indicated that they either *Strongly Agree* or *Agree* that they had developed "...the ability to identify, locate, evaluate, and effectively and responsibly use and share information that is appropriate for the task at hand." Review team direct assessment results support the student's self perceptions of their abilities to identify/locate the information needed and to effectively use that information, however student's assessment of their abilities to evaluate and use information responsibly does not align well with the direct assessment results for these criteria.

Action Plan:

As a result of this assessment 3 goals have been identified:

- Assure that all students graduating with a B.S. BIOL degree achieve a rubric score of ≥ 3 in all four Information Literacy criteria
- Improve the effectiveness of the assessment instrument
- Improve the data quality and student participation in the senior survey

1. Assure that all students graduating with a B.S. BIOL degree achieve a rubric score of ≥ 3 in all four Information Literacy criteria

- The departmental assessment committee will review these findings during the summer of 2015.
- The committee will then meet in September 2015 to discuss findings, consider other direct assessment methods in addition to the method used this academic year, and develop a proposal to address how to improve student's abilities to critically evaluate and responsibly use information.
- The committee chair will forward the proposal to the department chair for review by no later than September 30, 2015.
- The committee chair will forward the proposal to the department faculty for review and discussion during the October 2015 department meeting.
- Recommendations made at the October 2015 department meeting will be implemented by the committee chair who will redistribute the proposal for final review and approval.
- Changes to the curriculum will be implemented by the faculty and phased in during the spring 2016 and fall 2016 semesters.
- The department assessment committee would reassess the Information Literacy Outcome in spring of 2017.
 - This would be in addition to assessing the scheduled outcome of Inquiry and Analysis. Additional faculty involvement and support would be required.

2. Improve the effectiveness of the assessment instrument

With respect to the assessment instrument (rubric), feedback received from the review team indicates that some modifications to the language of the rubric may be in order to increase its effectiveness.

The actions to be taken to achieve this goal:

- The departmental assessment committee will consider the review team's recommendations during the summer of 2015.
 - The committee will then meet in September 2015 to discuss and make any necessary changes to the rubric.
 - The committee chair will forward the revised rubric to the department chair for review by no later than September 30, 2015.
 - The committee chair will forward the revised rubric to the department faculty for review and discussion during the October 2015 department meeting.
 - Recommendations made at the October 2015 department meeting will be implemented and the rubric redistributed for review and approval.

3. Improve the data quality and student participation in the senior survey

The findings from the senior survey, though insightful as to the self perceptions of graduating seniors, were difficult to relate to the direct assessment results. This is in part due to the lack of explicit criteria in the senior survey.

The actions to be taken to address this issue and achieve this goal:

- During the summer of 2015, the departmental assessment committee will review the

current survey and the committee chair; based on recommendations; will modify the survey so that the students are asked to select one of the four criteria that each believes best represents their ability/ skill level/ disposition for each of the five departmental outcomes.

- To increase student participation, the survey will be administered at the start of the spring 2016 semester and faculty will be asked to encourage seniors in their classes to participate by offering bonus points or reserving class time for students to take the 10 minute survey. The \$25 VISA gift card will still be offered to further incentive the process.

**Upcoming Academic
Year Outcome(s) To Be
Assessed:**

Students graduating with a B.S. BIOL degree will have the ability to develop and communicate scientific information through writing.

**Upcoming Academic
Year Assessment
Method(s) To Be Used:**

Direct Assessment Methods:

A team of three faculty will utilize the departmentally approved Written Communication rubric (see below) to score senior B.S. BIOL student assignments. This rubric, is a modified version of the AAC&U VALUE Rubric for Written Communication, and three fundamental criteria were approved by BIGS faculty in spring of 2015. The three areas to be assessed are:

1. *Context and purpose for writing*
2. *Content development*
3. *Applies disciplinary/genre conventions*

Additionally, results obtained from the pilot ETS *HEIghten Outcomes* tests administered in the spring of 2015 will be also be used to inform the assessment. ETS anticipates that the results from the Written Communication and Quantitative Literacy tests taken by Clarion University students will be available by the end of summer 2015.

Indirect Assessment Methods:

Senior status B.S. BIOL majors will be surveyed in January and February of 2016, using a modified version of the survey. Please see goal 3 under Action Plan for further details.

 [BIGS Written Communication Rubric](#)

**Upcoming Academic
Year Outcome(s)
Achievement Targets:**

As agreed upon by BIGS faculty, all students graduating with a B.S. BIOL degree should achieve a "3" or greater in all three Written Communication categories. Please see the rubric for the performance descriptors required to obtain a specific score.