Academic Assessment Handbook

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Office of Institutional Effectiveness (OIE)

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Overview

Academic assessment is an ongoing process of collecting and analyzing learning evidence and implementing improvements in curricula and programs based on that evidence (Colorado MESA University, 2018; Raaper, 2016). In the last two decades, academic assessment has received considerable attention for both external and internal reasons. In addition to fulfilling accreditation requirements, more and more colleges and universities have recognized the institutional value of outcomes assessment, which provides evidence of student achievement and thus, helps institutions to make decisions about curriculum, policy, and resource allocation (Kuh, et al., 2014; Kumar, Shukla & Passey, 2020; Sujitparapitaya, 2014).

An effective assessment process is frequently represented as a loop with four stages: 1) establish program-level learning outcomes[1]; 2) gather evidence of student learning; 3) analyze and discuss results within or across departments 4) make changes to the courses and pedagogy and/or assessment instrument. The following sections provides a closer look at each of these stages.

Organization of this Handbook

Assessment generates rich information that can be used to improve teaching and learning. This handbook presents a systemic view of academic assessment at Siena College, with the goal to help faculty gain a better understanding of it. It is divided into three sections:

I. Key Participants in Assessment
II. Assessment Timeline
III. A Closer Look at Assessment Phases

The third section specifically provides a description of and general instructions for the four phases of an assessment cycle, with examples and relevant resources. For step-by-step instruction on report submission, a Guide to Submission of Academic Student Learning Assessment Reports is provided at the Office of Institutional Effectiveness[2] (OIE) website.

I. Key Participants in Assessment

Student Learning Assessment Committee. The purpose of the Student Learning Assessment Committee (SLAC) is to improve academic program (major, minor, certificate, concentration, core) assessment and teaching. This is accomplished by providing assessment guidance and support as well as development and opportunities to share best practices.

The charge of the SLAC committee includes the following:

- Be advocates for student learning assessment
- Provide guidance in the development of student learning outcomes and assessment methods

[1] Note that learning outcomes and learning goals are used interchangeably at Siena College. This handbook uses learning outcomes to emphasize the actual results of a learning experience.
[2] Guide to Submission of Academic Student Learning Assessment Reports: https://www.siena.edu/files/resources/guide-to-submitting-student-learning-assessment-up.pdf

- Identify & deploy assessment resources
- Create opportunities for communicating best practices and experiences across all three schools
- Provide counsel to departments to help facilitate the submission of required assessment documents
- Revise, if needed, current documentation and submission procedures to ensure a reasonable balance between required evidence and what is beneficial to the schools and academic departments

School Assessment Coordinators. Each of the three schools at Siena has a School Assessment Coordinator who holds both school and college level responsibilities:

School:
- Ensure that new course proposals have assessment plans that align with stated student learning outcomes and a curriculum map showing how the course contributes to program level learning outcomes
- Ensure that submissions to the Board of Instruction other than new course proposals have appropriate and well written learning goals, assessment plans, and curriculum maps
- Assist in the development and implementation of assessment plans
- Provide counsel to departments to facilitate the submission of required assessment documents

College:
- Attend SLAC meetings and contribute to the development and execution of SLAC activities and initiatives
- Develop and implement opportunities to share best practices in assessment with faculty across schools
- Be an assessment advocate and work with OIE to ensure that meaningful student learning assessment is conducted across campus
- Review academic program documentation. Work with the departments to ensure the assessment documentation is clear and complete

Associate Deans. Associate Deans collaborate with School Assessment Coordinators and other stakeholders to promote student learning assessment efforts. The responsibilities include the following:

- Provide support to departments for student learning assessment initiatives (ex. assessment instrument dissemination, collection of data, distribution of results)
- Support the success of the School Assessment Coordinator in their work with departments
- Contribute to SLAC's discussion and support strategies to improve classroom instruction and assessment

Program Chairs and Faculty. Faculty are responsible for assessing students' learning outcomes as they related to the program learning outcomes and submitting the evidence to their program chairs. Program chairs are commonly the authors of the annual assessment reports. In collaboration with faculty members, program chairs compile and analyze the data, identify patterns, and document the results and proposed changes in the reports. Program chairs meet

with OIE once a year to discuss annual reports and future assessment plans or program changes.

Administration. The Deans and appropriate committees may provide resources including financial support to programs based on the assessment results. The three schools, working with the SLAC, the College Planning and Finance Committee (CPFC), and OIE are responsible for the coordination, review, and follow-up of assessment activities in their units.

The Office of the Provost. As the chief academic officer, the Provost is responsible for overseeing the assessment process. The Provost ensures that the annual assessment plans are in alignment with the overall College mission.

II. Assessment Timeline

Academic programs at Siena College are required to complete an annual academic assessment report to measure student learning outcomes at the program level. As programs have different curricula and requirements, we expect that they have different numbers of program level learning goals. While a major might have 5-7 goals, a minor may have 2-3. Further, while we expect that each learning goal is assessed regularly, it is possible that only a subset of goals is evaluated each year. This is determined by a number of factors that are often program specific, so programs are advised to discuss their questions with OIE.

The academic assessment report includes six main sections. Report sections are collected by OIE according to an annual schedule, with assessment planning and measurement being reported in the summer, and how results were used to improve the program and the impact of these changes being reported in October. (Figure 1)

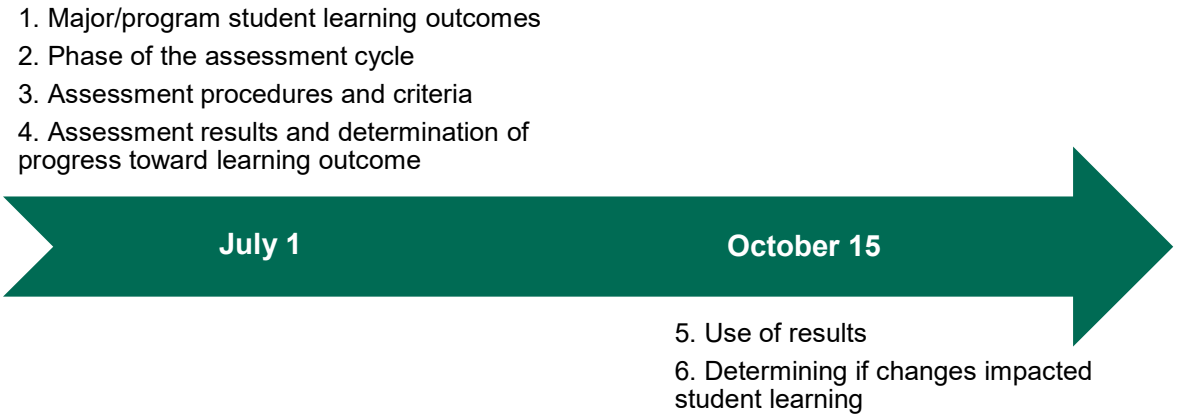

Figure 1. Academic Assessment Report Submission Timeline

OIE administrators are available to consult with faculty on all aspects of the assessment process. Once the report is submitted, the School Assessment Coordinator and OIE will review the plan and request meetings to discuss assessment plans and potential program/curriculum changes. Final assessment reports are posted on the OIE website.

III. A Closer Look at the Student Learning Assessment Process

This section discusses the four phases of academic assessment and discusses each in depth. The four phases are connected in a continuous cycle of improvement, as shown in Figure 2.

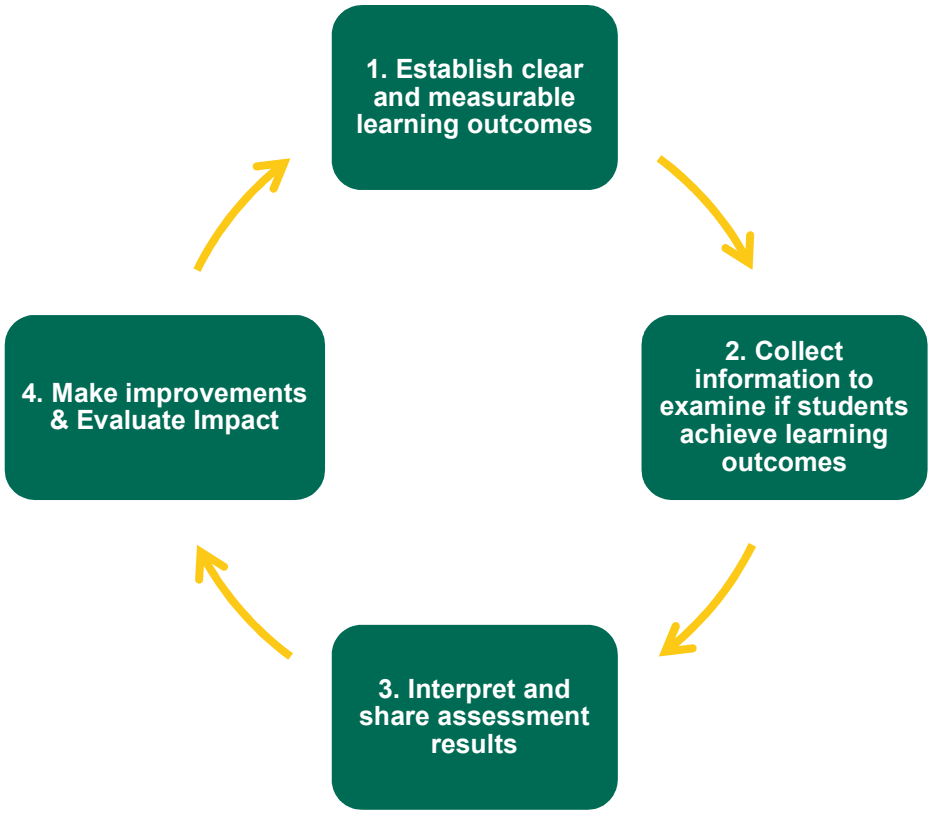

Figure 2. Assessment Process Adapted from Colorado Mesa University Model (2018)

The American Association for Higher Education lists 9 principles of good practice for assessing student learning outcomes (see Appendix A), which provides foundational ideas for faculty to start designing an assessment plan. Faculty are also encouraged to use the guidance as a starting point to develop their own principles within the program.

Step 1: Establish Learning Outcomes

Mission Statement. The planning phase should begin with consideration of a program mission statement. The mission statement generally consists of a paragraph regarding the purpose and function of the program as well as the stakeholders of the program. Why is the program here? What does the program do? Who is helped by the program? It acts as a guiding principle for the program's curriculum, activities, and overall direction. The mission statement should be aligned with broader school and institution’s missions. Below is an example of the Physics Program at Siena College.

Physics, Siena College (2022-23)

The Physics Department aims to develop in students a thorough understanding of the laws of physics and their applications. It fosters an understanding and appreciation of the meaning and significance of the laws of physics and their relevance to students' lives; the ability to apply the laws of physics to real world situations to solve problems analytically and numerically; to think and write critically; to design experiments and analyze and present data and results; hands-on experience with current research techniques employed in physics; critical thinking and investigational curiosity and drive.

Student Learning Outcomes. The goals present in the program mission guide the formation of learning outcomes (Massa & Kasimatis, 2017). Ideally, faculty of the same department (or across departments for interdisciplinary programs) collaborate to develop the program-level learning outcomes and incorporate them in their teaching and assessment. These outcomes will be eventually shared with students and published on the department website.

Learning outcomes are statements of specific and measurable achievements that students will demonstrate at the successful completion of the program. They usually consist of a few components including an opening phrase, an action word, and a learning statement. When creating a learning outcome, it could be helpful to ask "What will students get from the experience (curriculum) of this program?"

1. Opening phrase. The opening phrase indicates *who* will be doing the learning. Words such as "students" or "graduates" often serve as subjects (Massa & Kasimatis, 2017). Also, the future tense (e.g., "will") should be used to reflect the fact that outcomes are established in advance of student learning.

Communications, Siena College (2023-24)

***Students will be able to** apply digital media literacy skills to mass media message analysis.*

***Students will be able to** identify basic principles of modern medial law.*

2. Action word. The action word describes *how* learning will occur (Massa & Kasimatis, 2017). This word is often taken from Bloom's taxonomy (see Appendix B) and should be easily connected to an assignment/action (e.g., a paper) and a measure (e.g., a rubric).

Communications, Siena College 2023-24)

*Students will be able to **apply** digital media literacy skills to mass media message analysis.*

*Students will be able to **identify** basic principles of modern medial law.*

3. Learning statement. The learning statement indicates *what* content will be learned (Massa & Kasimatis, 2017). This phrase can include discipline-specific knowledge, behavior, or values.

Communications, Siena College (2019-20)

*Students will be able to apply **digital media literacy skills to mass media message analysis**.*

*Students will be able to identify **basic principles of modern medial law**.*

A good learning outcome should be realistic, clear, specific, and assessable. Table 1 lists recommended practices as well as those that should be avoided when developing learning outcomes.

Table 1. Do's and Don'ts When Writing Learning Outcomes

Do's	**Don'ts**
The statement is aligned with the program's mission statement.	The statement is broad and unmeasurable.
The statement focuses on the results of student learning.	The statement involves learning resources, practices, or students' feeling about their learning experiences.
The statement is specific and measurable.	The statement does not use any action words.
The statement uses one action word.	The statement is too complicated or wordy.
One statement focuses on one learning outcome.	The statement covers multiple outcomes; usually uses "and" or more than one action word.
	The statement is not realistic.

Course vs. Program Learning Outcomes. Learning outcomes can be identified at many organization levels such as institution/college, school, program, and course. Program learning outcomes are typically broader than course learning outcomes, outlining the knowledge and skills that students will achieve by the time they complete the entire academic program, be it a major, minor, certificate, or concentration. On the assessment report, faculty only address program-level learning outcomes. It can be helpful to remember that the skills or knowledge that students demonstrate to meet program level learning goals are the accumulated knowledge developed by completing course-level goals through their arc in the program.

However, an effective program is not a collection of courses, and program learning outcomes are not a simple accumulation or summary of course learning outcomes. The learning outcomes of an effective program should have two characteristics: reflecting progressive rigor and concluding with a capstone experience (Suskie, 2018).

In an effective program, students are expected to develop more advanced skills as they progress through the program. That means the learning outcomes should include a diverse range of knowledge and skills of different levels of complexity. Bloom's Taxonomy is a helpful resource to gauge the level of rigor embedded in the learning goals (both course and program). Note, for each learning outcome, students need to have multiple opportunities throughout the

program to practice it and enhance their learning before they finally master it. Programs will develop a curriculum map to outline the required curriculum and outcomes.

Curriculum Map. A curriculum map is a tool for documenting and depicting where (e.g., in which courses) and when experiences relevant to student learning outcomes are occurring (Massa & Kasimatis, 2017). It visually depicts the alignment between learning outcomes, curriculum, and assessments. With a curriculum map, programs can: 1) identify if there are any gaps in curriculum and program requirements, such as key learning outcomes not addressed in courses or courses that are not aligned with any program learning outcomes (NILOA, 2018); and 2) examine the coverage of learning outcomes in different courses and ensure the repetition happens in an optimal sequence from the lowest (i.e. introduce) to the highest (i.e. master) degrees of learning. The definition of the three degrees of learning (i.e. introduce, reinforce, and master) can be found in Appendix C.

There are three common approaches to mapping program learning outcomes. The first one requires the program director to collect course information from department faculty and then compile it into a map. The department director can also complete the entire map of the curriculum, in isolation. There may be minimal to no conversation with other faculty before, during, and after the process. With the third and preferred approach, faculty work together at meetings or via emails to identify which courses align with which outcomes. It is an active process centering discussion and often dissent, before achieving a shared understanding of the contribution of each course towards the larger picture. While there is no wrong approach, the third one is recommended as it includes a shared understanding of integrated learning design. It brings educators together to collaboratively discuss where learning occurs and explore alignment between learning outcomes, courses, and assessments.

Although there are different possible formats for curriculum maps, Siena's convention matches the most commonly used format and language, as presented in this document. To start, the map is built as a two-dimensional matrix, with learning outcomes arrayed across the top and courses listed down the left side. In Table 2, a mark is made in the box where a course/learning practice addressed an outcome.

Table 2. First Step in Building a Curriculum Map[3]

Learning Outcomes	**LO1**	**LO2**	**LO3**
Course 1	X	X	
Course II		X	
Course III	X		X

[3] Table 2, 3, and 4 are adapted from National Institute for Learning Outcomes Assessment (NILOA).

Next, the learning progression is added using the degrees of learning (see Table 3). The degrees of learning (i.e. I, R, M) communicates the degree to which each program learning goal is addressed in the program's courses. Once the current degrees of learning are mapped, conclusions can be drawn about the coverage of different topics, the scaffolding of learning, and the rigor of the program. It also helps identify assessment opportunities. Often, advanced or capstone courses are the best places for program level assessment (Suskie, 2018). All programs (major, minor, concentration, and certificate) at Siena College should develop and maintain a curriculum map at this level.

The curriculum map can have a further level in which programs identify the artifacts used to assess the learning goal on the map, along with the degrees of learning. This layer of mapping allows discussions of the validity of the assessment tool (i.e. is it measuring the skill or knowledge intended?). Also, it serves as a built-in check such as when a course is revised, if that artifact is changed or removed, the program knows program level assessment plans need to be reviewed and updated. This can be illustrated by a curriculum map from Siena's Game Design Program. (Table 5)

Table 3. A Map of Learning Progression and Development

Learning Outcomes	**LO1**	**LO2**	**LO3**
Course 1	Introduced	Reinforced/Assessed	
Course II		Introduced	
Course III	Introduced		Mastered/Assessed

Table 4. A Map of Assessment Approaches

Learning Outcomes	**LO1**	**LO2**	**LO3**
Course 1	Introduced	Reinforced/Assessed (Exam Questions)	
Course II		Introduced	Reinforced/Assessed (Oral Presentation)
Course III	Introduced		Mastered/Assessed (Case Study)

Table 5 provides an example of a curriculum of the Game Design Program at Siena College.

Table 5. Curriculum Map of Game Design

Learning Outcomes		1. Conceptual Understanding (Theoretical) Program: Develop strong foundational knowledge of the history and theory of game design and be able to identify the use and function of games in contemporary society.	2. Conceptual Understanding (Practical) Program: Demonstrate a strong understanding of the fundamental elements of art and design, programming, management, and marketing.	3. Problem Solving Program: Utilize current industry standard softwares and game building strategies. Apply knowledge of the strengths and limitations of these tools to the development of effective workflows and strategic decision making in response to challenges.	4. Experiential Competency Program: Apply the skills learned in individual tracks to advance the work of a diverse team and inspire each other to complete a common goal with a high standard on a timeline.	5. Communication Skills Program: Apply critical thinking with creativity and practice effective communication in a collaborative work environment.	6. Analysis Program: Demonstrate the ability to verbally articulate the merits and deficiencies of one's work and creative intentions in a project. Contribute to thoughtful discourse when analyzing professional and student work.	7. Application Program: Develop, refine, and curate work to compose a portfolio that demonstrates proficiency in skills acquired according to track requirements and goals.	8. Visual Art & Design (VAD) Track 1: Students will demonstrate technical excellence in the materials and software used in the field of art, design, and game design.	9. Visual Art & Design (VAD) Track 2: Students will understand how to communicate their ideas visually with purpose and refined aesthetics.
CORE	GAME101- Intro to Game Studies	I	I	I	I	I	I		I	
CORE	CSIS110- Intro to Computer Science: Multimedia (Python)	I	I	I						
CORE	MUMD225- Intro to Digital Art & Design		I	I			I	I	I	I
VAD TRACK	CREA200- Drawing I		I				I	I	I	I
CORE	GAME200- Examining Play	R	R	R	R	R	R		I, R	
CORE	CSIS011- Problem Solving with Spreadsheets		I	I						
VAD TRACK	CREA204- Digital Photography I		I				R	I	I	I
VAD TRACK	CREA304- Painting I		R				R	R	I, R	I, R
VAD TRACK	MUMD245- 3D Modeling & Texture	I, R	R	I, R			R	R	I, R	I, R
CORE	MGMT230- Project Management		I	I	I	I				
VAD TRACK	CREA460- Figure Studio		R				R	R	I, R	R
VAD TRACK	MUMD230- Digital Painting & Environmental Art	I, R	R	I, R			R	R	I, R	R
CORE	MGMT430- Applied Project Management		R	R	R	R				
VAD TRACK	MUMD330- Concept Design & Storyboarding	R	R	R			R	R	I, R	I, R
VAD TRACK	MUMD345- 3D Animation & Intro to Rigging	I, R	R	I, R			R	R	I, R	I, R

VAD TRACK	MUMD380- 3D Digital Sculpting	I, R	R	I, R			R	R	I, R	I, R
CORE	GAME301- Game Studio I	R	M	I, R	R	R	M	R	R	R
CORE	GAME302- Game Studio II	R	A, Summative Individual Projects	M	R	R	A, Summative Individual Projects	R	A, Summative Individual Projects	A, Summative Individual Projects
CORE	GAME400- Fall Seminar in Game Design, Senior Thesis Capstone	R	A, Summative Group Project	M	M	M	M	A, Summative Final Portfolio	M	M
CORE	GAME401- Spring Seminar in Game Design, Senior Thesis Capstone	A, Summative Thesis Paper	M	A, Summative Final Project	A,	A, Summative Final Project	A, Summative Final Project and Thesis Paper	M	A, Summative Final Project	A, Summative Final Project

Once a map is complete, it should be shared and reviewed within and across the department. Faculty are encouraged to use the checklist below when reviewing the map.

- Does each course support at least one program level learning goal?
- Does the program present material for each learning goal in a logical order?
- Is the content supporting these learning goals presented in a stepwise degree of learning? For example, is it introduced before it is reinforced?
- Are students expected to show mastery of learning too early (e.g., in lower level courses)?
- Do students get sufficient practice and formative feedback on the learning related to all the goals before being expected to demonstrate mastery?
- Do some goals get more coverage in the curriculum than others? Is that intentional?
- Do all students, regardless of which electives they choose, experience a coherent progression and coverage of all program level goals?

Step 2: Decide Assessment Methods

Type of Assessment Data. When program-level learning outcomes are developed, the program can start designing/selecting assessment methods to measure student achievement of these outcomes. The methods should be aligned with what students are expected to learn (learning outcomes) and how they learn it (assessment activities). For example, students may demonstrate their disciplinary knowledge on a multiple-choice test, but that instrument would not be an effective tool to measure written communication.

Faculty can collect different types of assessment evidence depending on the intended learning outcomes and activities. Generally, evidence is categorized as direct/indirect data or quantitative/qualitative data.

Direct evidence. Direct evidence is “tangible, visible, self-explanatory, and compelling evidence of exactly what students have and have not learned” (Suskie, 2009, p. 20) in the form of student work or performance. Examples of direct evidence include (Suskie, 2018):

- Published tests (e.g., Major Field Test) or licensure or certification exams
- Capstone experiences evaluated with a rubric
- Written work, performances, and presentations evaluated with a rubric
- Portfolios evaluated with a rubric
- Scores on locally-designed multiple-choice or essay tests
- Student reflections evaluated with a rubric

Indirect evidence. Indirect evidence consists of “proxy signs that students are probably learning” (Suskie, 2009, p. 20). In other words, indirect assessment uses program qualifications or students’ or others’ opinion to provide indirect evidence about students’ acquisition of the learning outcomes. Examples include (Suskie, 2018):

- Retention and graduation rates
- Admission rates into graduate programs

- Job placement rates
- Alumni perceptions (e.g., satisfaction)
- Student ratings (e.g., knowledge)
- Questions about the course on end-of-course student evaluation forms
- Student, alumni, and employer satisfaction ratings from surveys, interviews, or focus groups
- Student participation in professional activities

Quantitative evidence. Quantitative evidence can come from organized and planned response options (e.g., Likert scales or preset categories) that can be numerically represented and statistically analyzed in meaningful ways (Suskie, 2018).

Qualitative evidence. Qualitative evidence is generated from open-ended and unplanned response options (e.g., comments) that are generally analyzed into themes (Suskie, 2018). These might be anecdotal feedback or responses collected from a survey, for example.

Different types of evidence are often useful in different ways. Direct evidence is useful in tracking learning. For example, comparing Major Field Test results for the current senior cohort to those for last year's senior cohort may reveal differences in knowledge or skill acquisition between the two groups. Indirect evidence is useful in evaluating learning processes. Anecdotes of positive faculty and student perception to a new capstone project may be evidence in support of maintaining it in the program.

Quantitative evidence is beneficial in revealing whether students meet learning goals, along with progress towards those goals, whereas qualitative evidence is beneficial in suggesting why issues are arising, along with new issues to consider. For example, student response to a survey on a course could help the program to make evidence-based changes.

It is a good practice to incorporate multiple types of evidence into an assessment plan, although direct and quantitative evidence should be incorporated whenever possible. The Venn diagram in Figure 3 lists the simple definition of each assessment evidence as well as the relationship among them.

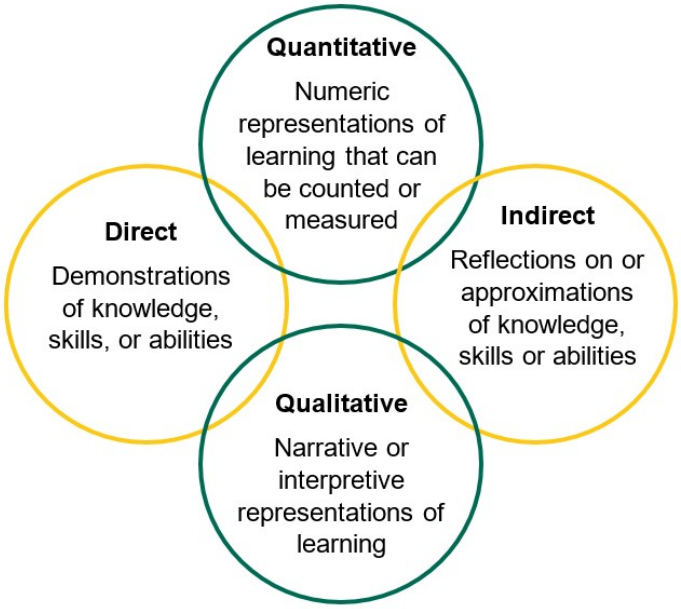

Figure 3. Venn Diagram of Sources of Assessment Evidence

Assessment Rubrics. A rubric is a list or chart that describes the criteria used to grade an assignment. For faculty, it helps to maintain consistency in interpreting students' work, as it provides an objective guide. For students, it articulates expectation for an assignment and provides focused feedback. Rubrics are often used with direct assessment evidence.

At Siena College, faculty are encouraged to use descriptive rubrics to assess student work. The steps to develop a rubric are listed below, using the example from First Year Seminar (FYS) in Table 6:

1. List the evaluation criteria or outcome components that students are expected to achieve in completing the assignment. Generally, rubrics should have three to eight criteria to keep grading time manageable and to cover learning goals of the assignment. Use strong action words and concrete language to facilitate measurement. In the example below (Table 6), the content under column "COMPONENTS" (e.g., Context of and Purpose for Writing, Thesis, Development of Argument, etc.) are the criteria of the rubric.

2. Add a rating scale or performance levels to the rubric. Three to five levels are ideal for an effective rubric, and each level has a label for clarity (e.g., mastery, proficient, approaching, not met). There are four rating scales (A range, B range, C range, D range) in the example of FYS.

3. Add descriptions for each criterion-performance level cell. Faculty are encouraged to collaboratively discuss what qualities distinguish an assignment at one performance level from another. It is helpful to consider Bloom's Taxonomy and use action verbs (Appendix B) to make the descriptions distinctive and measurable for each scale. Note that the description should not only include the features that are expected to see at higher performance levels, but those that are missing at lower performance levels. In the example of FYS, "no awareness of audience's perceptions…" is the missing feature at the D range.

4. Test the rubric on a sample of assignments of varying quality to help catch issues with clarity, criteria, and performance levels. Discuss the rubric with colleagues and revise it based on the feedback.

Table 6. Rubric Adapted from the First Year Seminar Program

	COMPONENTS	4 (A range)	3 (B range)	2 (C range)	1 (D range)
12%	Context of and Purpose for Writing	11-12	10-10.5	8.5-9.5	7.5-8
		Demonstrates a thorough understanding of assignment guidelines and the intended purpose. Clearly weighs and addresses the audience's perceptions and assumptions.	Demonstrates an adequate consideration of assignment guidelines and the intended purpose. Shows awareness of audience's perceptions and assumptions.	Demonstrates awareness of assignment guidelines and the intended purpose. Begins to show awareness of audience's perceptions and assumptions.	Demonstrates minimal attention to assignment guidelines and intended purpose. Shows little to no awareness of audience's perceptions and assumptions.
15%	Thesis	13.5-15	12-13	10.5-11.5	9-10
		Clearly articulates an intelligent, sophisticated and creative thesis that is expressed explicitly and addresses the "so what."	Contains a thesis that is articulated clearly even though it may not be original, creative and/or express a "so what."	Contains an idea that could be articulated more clearly and developed into a thesis.	Does not contain a thesis or an idea that could be developed into one.
25%	Development of Argument	22.5-25	20-22	17.5-19.5	15-17
		Provides original and highly relevant I SAY arguments along with thorough explanations and analyses of examples and details in fully developed paragraphs.	Contains somewhat original and relevant I SAY arguments and explanations and evaluations of examples and details in mostly developed paragraphs.	Contains few original or relevant I SAY arguments, examples, and details and relies more heavily on summary instead. Paragraphs are underdeveloped.	Does not contain any original or relevant I SAY arguments, examples, and details. Primarily summary and/or description. Paragraphs are underdeveloped.
15%	Organization	13.5-15	12-13	10.5-11.5	9-10
		Is extremely well-organized and unified with clear and logical relationships among points, claims, and argument.	Contains minor flaws in regard to organization, coherence, and unification with adequate relationships among points, claims, and argument.	Contains frequent flaws in organization and coherence. Is not unified. There are loose connections among points, claims, and argument.	Is unorganized and incoherent.

15%	**Use of evidence / sources**	13.5-15	12-13	10.5-11.5	9-10
		Exceptional use of They Say/ I Say format. Contains carefully selected and appropriate sources and citations that are properly framed, unpacked, and fully analyzed (ICEd) with clear connections to points/ argument.	Good use of They Say/ I Say format. Contains adequate and appropriate sources and citations that are mostly framed, unpacked, and analyzed (ICEd) with connections to points/ argument.	Lack of They Say/ I Say format. Contains sources that are not carefully selected and citations that are not complex or meaningful. They are not ICEd well in that they are not integrated correctly or effectively, and analysis is weak.	Does not incorporate They Say/ I Say format. Does not contain adequate sources or enough citations and/or they are not documented. Little to no evidence of framing or analysis (ICE).
10%	**Documentation**	9-10	8-8.5	7-7.5	6-6.5
		Acknowledges and documents sources using designated citation methods. Includes a near perfect Works Cited / Bibliography page.	Some flaws in acknowledging, documenting and using sources and designated citation methods. Mostly correct Works Cited / Bibliography page.	Numerous and varied flaws in acknowledging and using sources and Works Cited / Bibliography page requires significant corrections.	Significant flaws in acknowledging and using sources and No Works Cited / Bibliography page or poor attempt.
8%	**Syntax and Mechanics**	7.5-8	6.5-7	6	5-5.5
		Is virtually free of all errors in grammar, punctuation, sentence structure, word choice, and spelling.	Contains minor errors in grammar, punctuation, sentence structure, and spelling.	Contains numerous errors in grammar, punctuation, sentence structure, and spelling.	Contains egregious errors in grammar, punctuation, sentence structure, and spelling.

Once a rubric is developed, it is important to test it on actual student work with a small group of faculty before disseminating it to everyone. Consider using this checklist to ensure the rubric follows the best practices:

- Does the rubric have three to eight evaluation criteria or learning outcomes?
- Is each of the criteria or learning outcomes distinct from the others?
- Is each of the criteria or learning outcomes defined in explicit, concrete, and measurable terms?
- Is each of these criteria or learning outcomes observable within the chosen assignment?
- Does the rubric contain three to five performance levels?
- Is each performance level labeled with a name, not just a number?
- Do performance levels progress in a clear and logical order?
- Are specific action verbs used in the descriptions of performance level?
- Is parallel language used in the descriptions across performance levels?

- Does each of the descriptions address the same content but vary in levels of performance?
- Are there any jargon terms used in the descriptions? There should not be.
- Is there any judgement instead of descriptor used in the descriptions? There should not be.
- Are samples of student work at various levels collected for rubric development?
- Is the rubric tested on actual student work?

Many higher education institutions have started to use technological tools for developing rubrics. Several websites offer free templates and simple software for creating and saving rubrics. Appendix D lists a few websites that offer free templates or software to create rubrics from scratch.

Assessment Criteria. Once the rubric is developed, faculty can work together to decide the criterion, standard, or level of learning that is expected for students to achieve. This criterion or standard serves as a benchmark, which helps faculty to understand students' performance in different areas.

Common examples of criteria in academic assessment are:

- 70% of students will earn a B or higher on their application assignment
- All students earn a minimum score of 65 out of 100 on the final project
- 70% of students will meet or exceed expectations on their application paper, as measured by a rubric

Faculty often have difficulty deciding the percentages of students at a given level of performance or achievement (Suskie, 2018). Some pointers for this decision include:

- Collaborate with other faculty in your program
- Review past data such as historical score or grade distributions
- Consult faculty in your discipline at other institutions regarding their standards and percentages
- Check professional organization websites for relevant rubrics and standards

Implementation. When the assessment tools are ready, faculty should think about a timeline for implementation. To complete the annual report, faculty are encouraged to collect and report summative assessment which compares student learning against the established benchmark. It helps faculty to identify areas of improvement and make evidence-based changes on instruction or curriculum.

Assessments can be conducted semiannually or annually depending on the availability of the courses where assessment occur. In some rare cases, assessments could be planned for multiple years, if the learning outcomes take students years to master. Also, if the program has a small enrollment (<5 annually), it may consider collecting assessment data of student cohorts in the past 3-5 years and compile them to show a tangible result.

The example[4] below indicates what questions faculty can ask when creating an assessment timeline.

Figure 4. An Example of Assessment Plan Timeline

Step 3: Discuss and Disseminate Results

One of the primary purposes of assessment is to provide timely and systematic feedback to all stakeholders who are involved in the assessment process for continuous improvement. This requires faculty to analyze the collected data and provide interpretation of the results with particular teaching context and student cohort in mind.

To achieve the goal, we recommend two ways to look at the results. The first one is to compare student learning outcomes with one another. Take the First Year Seminar Program for example (see Table 6), students may demonstrate strong argument skills but not perform so well in essay organization.

The second one which is more common, is to compare student learning evidence against the established criteria or targets. The criteria are decided by faculty collaboratively in the phase of assessment design. Good criteria are both rigorous and realistic helping programs to identify student strengths and weaknesses.

Departments are encouraged to share the results with various types of stakeholders, particularly faculty and higher leadership. Faculty are most interested in improving the courses they teach and the instructional methods they use. Assessment results help them understand the effectiveness of curriculum and adjust them accordingly to improve teaching and learning.

Additionally, changes need to be recognized and addressed at an institution's decision-making levels to assure the institution appropriately allocate resources. Therefore, Administrative Divisions should also understand the assessment results in order to make accurate decisions about college strategic planning and budgeting (Shavelson, 2010).

[4] This is adapted from a Chart for Monitoring Assessment Progress Across a College in Assessing Student Learning by Linda Suskie (2018).

Step 4: Make Improvements and Evaluate Impact

When the changes are identified at the program or institutional level, faculty, staff, and administrators need to carry out the changes to improve program or institutional effectiveness. Changes could happen in the following formats (adapted from Maki, 2002):

- Revise pedagogy, curricula, sequence of courses/curriculum map
- Ensure reinforcement of particular knowledge, abilities, habits of mind by integrating relevant information across the curriculum
- Design more effective student orientation
- Describe learning outcomes more precisely and share them with students
- Shape institutional decision making, planning, and allocation of resources based on the results

When the changes are implemented, the program needs to monitor and document the impact of these changes. This then could be another round of data collection of student performance or anecdotal data of faculty and student feedback. This could be a start of assessment in a new cycle, in the case that criteria are met as shown in Figure 5. Revision of assessment plans include using new courses, making criteria more rigorous, and making assessment artifacts more challenging.

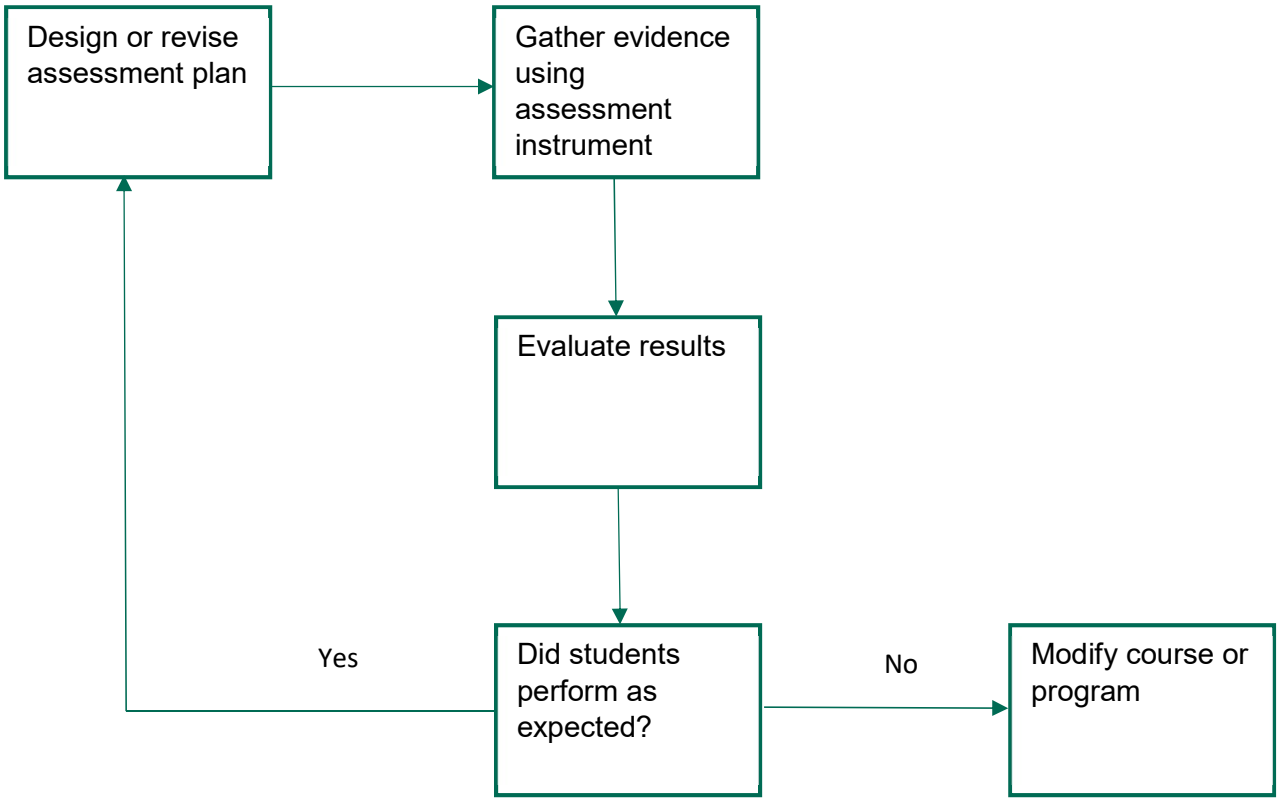

Figure 5. Repeated Assessment Cycle

Conclusion

Assessment of student learning outcomes facilitates explanation of causal relationships between policies, practices, methods, and student learning achievements. At Siena College, assessment is mandatory for accreditation purposes to demonstrate quality of academic programs and student services. However, it is not the only reason to conduct assessment activities. More importantly, assessment promotes a culture of continuous improvement through routine collaboration among faculty, professional staff, and administrators. Eventually, the college will transform into a learning community constantly raising questions about student learning and development, and finding ways to engage students in more effective and meaningful learning experiences.

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Appendix A. AAHE's 9 Principles of Good Practice for Assessing Student Learning

1. **The assessment of student learning begins with educational values.** Assessment is not an end in itself but a vehicle for educational improvement. Its effective practice, then, begins with and enacts a vision of the kinds of learning we most value for students and strive to help them achieve. Educational values should drive not only *what* we choose to assess but also *how* we do so. Where questions about educational mission and values are skipped over, assessment threatens to be an exercise in measuring what is easy, rather than a process of improving what we really care about.

2. **Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.** Learning is a complex process. It entails not only what students know but what they can do with what they know; it involves not only knowledge and abilities but values, attitudes, and habits of mind that affect both academic success and performance beyond the classroom. Assessment should reflect these understandings by employing a diverse array of methods, including those that call for actual performance and using them over time to reveal change, growth, and increasing degrees of integration. Such an approach aims for a more complete and accurate picture of learning, and therefore firmer bases for improving our students' educational experience.

3. **Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.** Assessment is a goal-oriented process. It entails comparing educational performance with educational purposes and expectations -- those derived from the institution's mission, from faculty intentions in program and course design, and from knowledge of students' own goals. Where program purposes lack specificity or agreement, assessment as a process pushes a campus toward clarity about where to aim and what standards to apply; assessment also prompts attention to where and how program goals will be taught and learned. Clear, shared, implementable goals are the cornerstone for assessment that is focused and useful.

4. **Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.** Information about outcomes is of high importance; where students "end up" matters greatly. But to improve outcomes, we need to know about student experience along the way – about the curricula, teaching, and kind of student effort that lead to particular outcomes. Assessment can help us understand which students learn best under what conditions; with such knowledge comes the capacity to improve the whole of their learning.

5. **Assessment works best when it is ongoing not episodic.** Assessment is a process whose power is cumulative. Though isolated, "one-shot" assessment can be better than none, improvement is best fostered when assessment entails a linked series of activities undertaken over time. This may mean tracking the process of individual students, or of cohorts of students; it may mean collecting the same examples of student performance or using the same instrument semester after semester. The point is to monitor progress toward intended goals in a spirit of continuous improvement. Along the way, the assessment process itself should be evaluated and refined in light of emerging insights.

6. **Assessment fosters wider improvement when representatives from across the educational community are involved.** Student learning is a campus-wide responsibility, and

assessment is a way of enacting that responsibility. Thus, while assessment efforts may start small, the aim over time is to involve people from across the educational community. Faculty play an especially important role, but assessment's questions can't be fully addressed without participation by student-affairs educators, librarians, administrators, and students. Assessment may also involve individuals from beyond the campus (alumni/ae, trustees, employers) whose experience can enrich the sense of appropriate aims and standards for learning. Thus understood, assessment is not a task for a small group of experts but a collaborative activity; its aim is wider, better-informed attention to student learning by all parties with a stake in its improvement.

7. **Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.** Assessment recognizes the value of information in the process of improvement. But to be useful, information must be connected to issues or questions that people really care about. This implies assessment approaches that produce evidence that relevant parties will find credible, suggestive, and applicable to decisions that need to be made. It means thinking in advance about how the information will be used, and by whom. The point of assessment is not to gather data and return "results"; it is a process that starts with the questions of decision-makers, that involves them in the gathering and interpreting of data, and that informs and helps guide continuous improvement.

8. **Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.** Assessment alone changes little. Its greatest contribution comes on campuses where the quality of teaching and learning is visibly valued and worked at. On such campuses, the push to improve educational performance is a visible and primary goal of leadership; improving the quality of undergraduate education is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes is seen as an integral part of decision making, and avidly sought.

9. **Through assessment, educators meet responsibilities to students and to the public.** There is a compelling public stake in education. As educators, we have a responsibility to the public that support or depend on us to provide information about the ways in which our students meet goals and expectations. But that responsibility goes beyond the reporting of such information; our deeper obligation -- to ourselves, our students, and society -- is to improve. Those to whom educators are accountable have a corresponding obligation to support such attempts at improvement.

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Appendix B. Action Verbs for Bloom's Taxonomy[5] (2001)

Levels of Learning					
Low ---------- High					
Remembering	**Understanding**	**Applying**	**Analyzing**	**Evaluating**	**Creating**
Choose	Classify	Apply	Analyze	Agree	Adapt
Define	Compare	Build	Assume	Appraise	Build
Identify	Contrast	Choose	Categorize	Assess	Change
Label	Demonstrate	Construct	Classify	Award	Combine
List	Describe	Conclude	Discover	Choose	Compose
Locate	Explain	Determine	Dissect	Compare	Construct
Match	Extend	Develop	Distinguish	Conclude	Create
Memorize	Illustrate	Experiment	Divide	Criticize	Delete
Name	Infer	with	Examine	Decide	Design
Recall	Interpret	Identify	Infer	Deduct	Develop
Recognize	Outline	Model	Inspect	Defend	Elaborate
Reproduce	Paraphrase	Organize	Relate	Determine	Estimate
State	Relate	Plan	Simplify	Disprove	Formulate
Tell	Rephrase	Select	Survey	Estimate	Imagine
	Show	Solve	Test for	Evaluate	Improve
	Summarize	Use		Explain	Invent
	Translate			Influence	Make up
				Interpret	Maximize
				Judge	Minimize
				Justify	Modify
				Measure	Originate
				Perceive	Plan
				Prioritize	Predict
				Prove	Propose
				Rate	Solve
				Recommend	Suppose
				Rule on	Test
				Select	Theorize
				Support	
				Value	

[5] Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing, Abridged Edition. Boston, MA: Allyn and Bacon.

Appendix C. Definition of Degrees of Learning

(Produced by the SLAC Committee, 2024)

Introduce

Introducing an essential skill or concept related to a program-level program level learning outcome means to teach it to a level that a novice could reliably identify and generally organize the defining features of the skill or concept. Through a repeated cycle of guided practice and feedback, students should be able to reliably apply the skill or concept in simple situations. Concurrently, their vocabulary around this skill or concept is being developed, such that acquiring essential terminology provides students additional ways to describe and understand the skill or concept at a basic level. A complete introduction produces students who can perform the skill or apply the concept correctly in simple contexts most of the time, and use the associated specific language to describe this application. A true introduction establishes a solid foundation for future, higher-level execution.

Reinforce

Reinforcement of a skill or concept associated with a program-level learning outcome often begins with review and practice in simple contexts to stimulate recall, then transitions into practicing or applying the skill or concept in increasingly sophisticated contexts. Connections between the skill or concept and other concepts in the field are made explicit. An increasing level of discernment is cultivated, such that students begin to recognize when to apply the skill or knowledge and when not to, and can present a logical and relevant justification for either case. Students correctly and independently execute the component steps in simple situations. Students begin to apply the skill in increasingly complex situations with feedback. They begin to learn where necessary information is, and how to access it (e.g., protocols, evidence, and software). Concurrently, the associated discipline-specific vocabulary continues to be cultivated and students appropriately use this language to express nuanced ideas about the skill or concept and its associated disciplinary context.

Master

At the level of Mastery, students can consistently and correctly apply the skill or knowledge in complex scenarios with minimal to no assistance. They can identify and correct errors in application by others and explain their rationale. Students can provide appropriate, evidence-based critiques or analyses of their work and the work of others. They readily identify the appropriate contexts to apply the skill or knowledge, both within familiar contexts and new scenarios. Learners demonstrate an understanding of where to find the related tools they need. They can use discipline- specific terminology to describe and defend their ideas against questioning, providing cogent arguments and relevant evidence. Summative assessments are applied at this level to measure student achievement of program-level learning goals.

Mastery for Majors/Degree Completers: Distinct from minors, concentrations, or certificates, degree programs (undergraduate and graduate) involve sustained and focused training over longer periods of time. Given this, the expectations for Mastery are also more robust. In addition

to the features described in the definition of Mastery, degree completers will demonstrate intellectual agility. For example, they have the ability to break ideas down into their component parts and put them back together in new and appropriate ways to propose new ideas. They also demonstrate agility by independently bridging ideas, sometimes distant, within the discipline.

Appendix D. Technological Tools and Other Resources for Rubric Development

Authentic Assessment Toolbox by Jon Mueller (2014): http://jfmueller.faculty.noctrl.edu/toolbox/

Course Level Examples by College and Type from the Eberly Center for Teaching Excellence at Carnegie Mellon: http://www.cmu.edu/teaching/assessment/examples/index.html

Designing Scoring Rubrics for Your Classroom by Craig A. Mertler from Bowling Green University: https://northweststate.edu/wp-content/uploads/files/designingrubrics-mertler.pdf

Grading Rubrics: http://gsi.berkeley.edu/teachingguide/grading/rubrics-practice2.html

How Do You Know If You Need a Rubric? by Danielle D. Stevens and Antonia J. Levi, Introduction to Rubrics*:* http://www.introductiontorubrics.com/

iRubric: https://www.rcampus.com/indexrubric.cfm

Middle States Rubric Guidance: Middle States Commission on Higher Education. (2007). Student Learning Assessment: Options and Resources, 2nd ed. Philadelphia, PA.

Rubistar: http://rubistar.4teachers.org/

Rubrics: Transparent Assessment in Support of Learning, A Workshop by Kenneth Ronkowitz: https://www.slideshare.net/ronko4/rubrics-35019148

University of Delaware's Center for Teaching & Assessment of Learning: http://assessment.udel.edu/resources/rubrics.html

Teaching With Rubrics: The Good, the Bad, and the Ugly by Heidi Goodrich Andrade: https://www.researchgate.net/publication/238684324_Teaching_With_Rubrics_The_Good_the_Bad_and_the_Ugly

Valid Assessments of Learning in Undergraduate Education (VALUE) rubrics: http://www.aacu.org/VALUE/rubrics/

What is a Rubric: https://lindasuskie.com/apps/blog/show/43614526-what-is-a-rubric-?siteId=115520809&locale=en-US