

Southeast Arkansas College Assessment Handbook Working Draft # 1

to be Finalized by May, 2021

Adapted from Coconino Community College Assessment Manual

Introduction

At Southeast Arkansas College, we are committed to building a community of lifelong learners who will be the leaders of tomorrow. Students are the reason we exist and at the heart of all we do. Teaching and learning is the focus of our work and we constantly strive to be better at empowering our students to become lifelong learners. To that end, we recognize that assessment of teaching and learning is integral in order to constantly improve what we do in order to better serve our students.

PART I - Assessment of Student Learning Outcome Rationale

Southeast Arkansas College values institutional effectiveness. Since offering the first course in 1993, various departments and faculty have engaged in numerous assessment practices for strengthening the teaching and learning processes.

The College recognizes its responsibility for assessing student learning outcomes. To achieve this, it is important to have both consistency and flexibility. The consistency is needed to create baseline and subsequent data for continual assessment decision making. Flexibility is required as newly developed programs and courses are added and as established programs and courses adapt to new technologies. Flexibility is also needed to adjust to findings determined in evaluating learning outcomes. Assessment of student learning helps the College achieve the highest quality education available to its students. In addition, the College recognizes the need for long-term commitment to assessment through leadership and strategic fiscal planning.

All faculty, whether they realize it or not, evaluate themselves in one way or another because when teaching, they care about learning. Assessment allows us to share what faculty are learning about teaching with others. Quantifying and qualifying what we know about learning helps colleagues see what is of value and what needs to change.

It is critical that SEARK has an organized and systematic method of assessment that adequately maintains the assessment plans over time and does not depend on any one individual in any particular position. Therefore, we strive to implement our learning outcomes assessment plan with broad-based participation to assure that assessment at SEARK is an integral part of all college activities.

SEARK has developed a formal policy to help ensure continuity in its assessment of student learning. This policy provides one such step towards valuing learning assessment over time. The policy reads:

ASSESSMENT OF STUDENT LEARNING - POLICY

Assessment of student learning is an ongoing, systematic approach to establishing clear and measurable goals of learning. Southeast Arkansas College supports student learning assessment as a means of understanding and improving student learning. Information on student learning will be gathered, analyzed, and interpreted for continuous improvement of teaching and learning. The assessment of student learning may be at the course, program, or institutional level. Assessment fosters effective student learning, curriculum enhancement, and program development, and contributes to resource allocation decisions. While assessment of student learning is a college-wide responsibility, the College is committed to the central role of Academic Affairs in the assessment processes.

PART II - Guiding Philosophy

Southeast Arkansas College is a public institution of higher education serving primarily the residents of the delta region of Southeast Arkansas. College faculty and staff aspire to challenge students academically, encourage pride in self and heritage, and promote an appreciation of other cultures. The College is dedicated to the ideals of life-long learning by addressing the whole person through its commitment to those who seek to improve their skills, enrich their lives, and enhance their futures. The faculty and staff strive to advance democratic ideals of equal opportunity for success, individual worth, and informed responsible citizenship.

The College's mission statement informs all of SEARK's assessment practices:

Southeast Arkansas College is committed to building a community of lifelong learners who will become the leaders of tomorrow.

To accomplish its mission, the College provides access to educational opportunities for a diverse student population. The College promotes cultural, intellectual, physical, and social development, technical competence, and serves as a resource for community development. As a degree-granting institution, the College assesses its programs, services, and student academic achievement for the purpose of continuous improvement and to guide strategic planning and decision-making.

Assessment is a term currently used for "evaluating student learning outcomes." Assessment is designed to improve learning. Data and "artifacts" are gathered to learn how to better evaluate instruction and learning. All effort is undertaken with the goal of how to improve teaching and learning in our courses.

The Higher Learning Commission (HLC) (2017) that accredits SEARK has much to say on assessment. Section 4 of the *HLC Guiding Values* provides a context as to why we value

assessment at Southeast Arkansas College. In the section on "A culture of continuous improvement," it states:

Continuous improvement is the alternative to stagnation. Minimum standards are necessary but far from sufficient to achieve acceptable quality in higher education, and the strongest institutions will stay strong through ongoing aspiration. HLC includes improvement as one of two major strands in all its pathways, the other being assurance that member institutions meet the Criteria and the Federal Requirements.

A process of assessment is essential to continuous improvement, and therefore a commitment to assessment should be deeply embedded in an institution's activities. Assessment applies not only to student learning and educational outcomes but to an institution's approach to improvement of institutional effectiveness.

For student learning, a commitment to assessment would mean assessment at the program level that proceeds from clear goals, involves faculty at all points in the process, and analyzes the assessment results; it would also mean that the institution improves its programs or ancillary services or other operations on the basis of those analyses. Institutions committed to improvement review their programs regularly and seek external judgment, advice, or benchmarks in their assessments. Because in recent years the issues of persistence and completion have become central to public concern about higher education, the current Criteria direct attention to them as possible indicators of quality and foci for improvement, without prescribing either the measures or outcomes.

Innovation is an aspect of improvement and essential in a time of rapid change and challenge; through its Criteria and processes HLC seeks to support innovation for improvement in all facets of institutional practice. (p. 6)

As noted, there is reference to meeting Federal Requirements. This reference is to the Department of Education (DOE), which puts forward this dictum through the Office of Educational Technology (2015): "At all levels, our education system will leverage the power of technology to measure what matters and use assessment data to improve learning." Most of the Department of Education's efforts have been geared towards K-12 assessment, but efforts at the lower levels inform many of the efforts at the post-secondary level.

PART III - What is Assessment?

SEARK College desires to have a meaningful assessment program that reflects its values and academic culture. To that end, a clear understanding of what assessment means is needed. Definitions can be concise, others wordy; they can be influenced by personality, experience, expertise and expectation. There are multiple approaches to defining assessment, but the underlying purpose of each is to improve student learning.

Consider the following brief survey of definitions from other colleges and universities:

"The word *assess* comes from the Latin *assidere*, which means *to sit beside*. Literally then, *to assess* means to *sit beside the learner*." (Stefanakis 2002).

"Assessment is a set of processes designed to improve, demonstrate, and inquire about student learning" (Marchese 1987).

"Assessment is the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving learning and development" (Palomba and Banta 1999: 4).

"The process of documenting knowledge, skills, attitudes and beliefs, usually in measurable terms. The goal of assessment is to make improvements, as opposed to simply being judged. In an educational context, assessment is the process of describing, collecting, recording, scoring, and interpreting information about learning" (Pennsylvania State University 2018).

Assessment, as the term is used at MSU-Bozeman, is the systematic process of gathering, interpreting, and acting upon data related to student learning and experience for the purposes of course and program improvement. The connection between teaching and learning is a complex one, and it is necessary to use multiple measures to develop a comprehensive understanding of how curriculum design and delivery relate to student learning. Assessment is an iterative and adaptive process in which results inform changes to instructional and assessment practices. The critical element is the use of results in decision making. Finally, the basis of good assessment practice is a shared understanding of program goals to ensure that all those involved in curriculum delivery are working toward the same ends (Montana State University 2004 :1).

Accrediting agencies in the United States all have their own definition for assessment. The Higher Learning Commission (2017) that accredits Southeast Arkansas College states, "Assessment and evaluation are used as ordinary language synonyms. When a narrower referent is intended, the terms are modified, as in "assessment of student learning" or "evaluation of academic services." (p. 13) In the assumed practices, HLC prescribes that data and artifacts "are accurate and address the full range of students who enroll." (p. 14) This means assessment should be consistent across all instructors, instructional methods, and instructional sites.

Southeast Arkansas College's Definition of Assessment

Using HLC's broad definitions as a guide, SEARK has created its own definition of assessment. The definition states:

Assessment is an ongoing, systematic process that includes defining and measuring student learning. To achieve this, a holistic coordinated process of gathering, analyzing, and interpreting information is necessary. The information gathered through this process becomes the data which guides in making decisions that will allow for continuous improvement of the teaching/learning process.

Student Learning Outcomes represent the measurable knowledge and skills that serve as the foundation for success in society, career, and life. Student Learning Outcomes are designed at the course level and are mapped to the program and institutional level and are included in all course syllabi. Classroom and co-curricular data are collected and analyzed by faculty and staff from across the campus to determine whether students are meeting the expectations described by these outcomes.

PART IV - Purpose of Assessment

To answer the question, "Why do we need assessment?" the College has developed a list of purposes for the assessment process:

- 1) To enhance the learning and teaching processes,
- 2) To satisfy student needs,
- 3) To compare with other institutions,
- 4) To provide continuous quality improvement,
- 5) To promote effective and efficient resources allocation,
- 6) To enhance faculty pedagogy/andragogy,
- 7) To improve college governance,
- 8) To provide information to stakeholders,
- 9) To promote staff development;
- 10) To improve strategic planning,
- 11) And to demonstrate institutional effectiveness to internal and external stakeholders.

To accomplish our purpose in assessment, we must have the following in place:

- 1) Establish a culture of assessment.
- 2) The assessment program must have the long-term commitment of administrative support and leadership.
- 3) Trust needs to exist between all players at the institution for there to be collaborative effort.
- 4) Faculty need to maintain assessment of student learning plans by entering data into Xitracs.
- 5) Programs are required to conduct regular program review.
- 6) Regular communication of assessment should occur through established processes.
- 7) Assessment results are not used for personnel evaluations.

Ultimately, all college personnel have responsibility in ensuring the education of our students. In order to accomplish the purpose of assessment, SEARK College has developed specific roles and responsibilities to ensure its continuity.

PART V - Roles and Responsibilities

<u>Faculty –</u>

- Own and are responsible for the assessment of student learning.
- Participate in assessment activities such as developing learning outcomes, collecting samples of student work, participating in norming sessions, discussing desired outcomes or how to use results, directing students to appropriate co-curricular activities.
- Complete Course Assessment Reports regularly.

<u>Programs –</u>

- Engage program colleagues in shared conversations about student learning and assessment.
- Develop program goals and student learning objectives.
- Develop and implement direct and indirect assessment methods appropriate for the program.
- Routinely collect, assess, and reflect on data and artifacts about the program and student learning based on assessment.
- Work with other faculty to close the loop between findings and instruction.
- Relay assessment information to all program faculty.
- Act on assessment results.

Assessment Committee

- Prioritizes, develops, implements, and coordinates the assessment of student learning outcomes and academic program reviews.
- Reviews assessment reports and collects and analyzes data for improving student learning.
- Ensures validity and reliability of data used in internal and external correspondences and reports.
- Maintains a repository for final assessment and program review resources and student learning outcome assessment materials.
- Provides information and advice on current instructional and assessment strategies.
- Prepares and disseminates materials to assist faculty and programs in the development of effective, meaningful, and manageable strategies for the assessment of student learning.
- Works with faculty to create an understanding of how assessment informs instruction and guides classroom teaching.
- Assists programs undertaking program review by providing strategies and processes for assessment of student learning.
- Works with the Institutional Research to facilitate support of faculty in assessment of student learning.
- Provides workshops or related activities to disseminate information about effective instructional practices and/or assessment practices as related to improving student learning.

• Ensures alignment of campus assessment initiatives with the reaccreditation standards and their emphasis on assessment of student learning.

Vice President for Academic Affairs

- Provides positive leadership in the coordination of campus-wide efforts related to improving student learning and educational effectiveness.
- Works with the Assessment Committee to ensure the assessment program functions at a high level.
- Communicates the value of assessment and publicly promotes its importance.
- Identifies, establishes, and makes available support and resources that initiate, build, and sustain the commitment to assessment.
- Acts on assessment results.

Assessment Committee

- Acts as a resource to academic and non-academic programs, individual faculty, and committees for assessing student learning outcomes and program evaluation.
- Receives evaluation reports from all programs.
- Helps each program formulate an assessment plan.
- Verifies implementation of assessment plans.
- Helps conduct general education assessment.
- Proposes recommendations facilitating ongoing assessment practices which enhance institutional effectiveness.
- Provides training and educational opportunities for faculty and staff to facilitate awareness of assessment issues and practices.
- Remains current and knowledgeable about the latest assessment tools, practices, and guidelines.

Institutional Research

- Provides support in developing, implementing, and analyzing appropriate methods as requested for program- and institutional-level assessment efforts.
- Provides findings from university-wide assessment methods.

<u>Deans</u>

- Encourage and support faculty and programs to engage in assessing student learning at the classroom and program level.
- Make funding available to support program assessment efforts.
- Provide leadership and work with programs and the Assessment Coordinator to ensure completion of the assessment reports, including assessment updates.
- Act on assessment results.

PART VI - Assessment Plan

The assessment process for student academic achievement at SEARK has been developed to respond effectively to the specific needs of our students and communities.

To make anything work, we need a map of where we are going and when we intend to get there. There are multiple ways to organize an assessment plan, but commitment to communication and excellence is the foundation. Agreement on determining the direction of an effective plan involves listening as part of the foundation-building process. Agreement means understanding multiple points of view so that we can improve our teaching. Time consideration in planning is a critical component of the process. Since students are only at the college for a short while, the assessment plan must advance at a pace that enables us to grow and learn to benefit students while they are here with us in the college. We owe it to our students to improve learning in a timely way so that their education is relevant to the world they enter when they leave SEARK College. It is critical to know where we are going and how to improve student learning. Knowing that students are engaged and progressing requires effort.

It is essential to have an assessment plan in place that evolves and changes within a structured framework. An assessment plan is:

"a document that outlines what empirical data will be collected, by whom, for the assessment each of the learning outcomes...." When this data is collected depends on the needs of the college, but typically it is collected in a multi-year cycle that allows for reflection and processing of the information. The process "for reviewing the data, policies and procedures to guide discussion and feedback of the results; and the process for modifying the course, program or curriculum to improve student learning "is a key component of the plan (California State University Northridge 2018).

Assessment planning is like any learning endeavor; it proceeds step by step. Assessment should be the process of sharing what we know about teaching and learning, and in this manual, we lay out steps to consider and the theoretical underpinning for what SEARK College is trying to accomplish through its assessment plans.

Assessment Steps

Assessment steps include:

- Develop learning outcomes.
- Check for alignment between the curriculum and the outcomes.
- Develop an assessment plan (must use direct measures).
- Collect assessment data.
- Use results to improve the program.
- *Routinely examine the assessment process and correct, as needed* (California State University Northridge 2018; Allen 2003).

PART VII - Developing Outcomes

Course Content versus Outcomes

Course content should be supportive of the intended course outcomes and consistent with the course description. Course content is not textbook specific and should be reflective of the required topics for the course. Course content should be the day-to-day class objectives that are introduced throughout the course. Content should be described in noun-based terms and written in outline form.

Example of course content:

"Will include:

- 1. The nature of religious experience, philosophy, and the problems/challenges of comparing religions
- 2. Conceptions of God: polytheism; henotheism, pantheism, monotheism, theism, deism; the questions of God's existence: cosmological, teleological, and ontological arguments"

"Will include:

- 1. Scientific method
- 2. Characteristics of Life"

"Will include:

- 1. Review:
 - a. evaluating formulas;
 - b. ratio, proportions, and variation;
 - c. using radicals to solve equations;
 - d. exponentials and logarithms;
 - e. graphing functions;
 - f. solving quadratic equations with the quadratic formula;
 - g. the Pythagorean Theorem;
- 2. Finance, growth, probability, statistics"

Course outcomes describe what students are expected to know and able to do by the end of the course. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Examples of course outcomes:

"Students will be able to:

- 1. identify the characteristics common to all life.
- 2. apply the scientific method to previous research and in their lab studies."

"Student will be able to:

1. demonstrate how social structure is interconnected to social groups, status and roles."

"Student will be able to:

- 1. solve various types of growth problems.
- 2. use various developmental algebraic techniques to solve problems."

Program outcomes identify what the student will learn as a result of successfully completing the multiple courses that constitute a program.

Examples of program outcomes:

"Students will be able to:

- 1. demonstrate safe performance of nursing skills of a registered nurse.
- 2. exhibit legal and ethical behaviors of a registered nurse."

"Students will be able to:

- 1. understand the structure of the criminal justice system and the functions of its constituents.
- 2. communicate knowledgeably about the AJS field."

Writing Outcomes

It is important for faculty to review the definitions for program- and course-level learning outcomes, which are essentially what the program or course prepares the student to do. Complex and convoluted outcomes are difficult to define and are nearly impossible to measure.

The ultimate goal will be to simplify the outcomes to state: "The student will <<verb>> <<something>>." Each outcome should have only one verb, and it should be the highest learning order verb from Bloom's Taxonomy. The goal of the simplified outcomes is for the students to really understand what skills and/or knowledge they should have once they complete their course and their program and for faculty to be able to measure them.

<u>Bloom's Taxonomy</u>

Bloom's Taxonomy is an educational philosophy used to classify learning outcomes for students. It is a component of how we evaluate student learning at SEARK College.

In the cognitive model of the taxonomy, learning is divided into six levels. This model includes classification levels that travel from basic to complex thinking. These levels are: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. A brief look at these classifications illustrate the method by which learning advances in this taxonomy:

- Knowledge to know specific facts, terms, concepts, principles, or theories;
- *Comprehension to be able to understand, interpret, compare, and contrast, explain;*
- Application to apply knowledge to new situations, to solve problems;
- Analysis to identify the organizational structure of something; to identify parts, relationship and organizing principles;
- Synthesis to create something, to integrate ideas into a solution, to propose an action plan, to propose a new classification scheme;
- *Evaluation to judge the quality of something based on its adequacy, value, logic, or use* (Dominican University of California 2018)

This classification system is a powerful tool to use to develop and evaluate outcomes as it explains the process of learning:

- Before a student can **understand** a concept, a student must **remember** it.
- To **apply** a concept, a student must first **understand** it.
- In order to **evaluate** a process, a student must have **analyzed** it.
- To **create** an accurate conclusion, a student must have completed a thorough **evaluation**.

As a student progresses through the curriculum to the completion of their program, the student should pass through the levels of Bloom's Taxonomy, establishing knowledge and understanding towards the beginning to evaluating and/or creating at the end of the program. Creating a learning process map to see where students first gain knowledge, then apply, and finally evaluate provides a good picture of where the program outcomes are being taught and applied.

Course and program outcomes should be leveled and tied to Bloom's Taxonomy as much as possible.

- K = Knowledge (gain, knowledge, comprehend information)
- A = Application (apply knowledge gained to real situations, analyze questions and issues)
- S = Synthesis (Prepare a work product exam, paper, presentation, etc. that presents knowledge gained, application, and synthesis or evaluation of knowledge and ideas).

Bloom's Taxonomy has key verbs that are used with each level of learning. Additionally, these learning levels can be used in conjunction with levels of questions and types of assessments. A resource has been compiled to be used when considering creating new outcomes or revising current ones. This worksheet can be found in Appendix E.

Curriculum Maps

Curriculum mapping is a way to determine alignment within a program and between courses. It can even be used within a single course and the lessons that are offered. Mapping identifies where and how a particular outcome is expected, explicitly taught for, and assessed. It is a method to understand the nature and role of prerequisites as well as electives within a program. Ultimately, mapping is a way of seeing organizational structure.

At a program level, a curriculum map can provide an overview of the structure of the curriculum and the contribution of individual courses to the outcomes of the program. It can identify program strengths by determining where and how learning outcomes are being addressed, or it can identify gaps with those learning outcomes that are only addressed by a few courses. Additionally, a map can show the optimal sequence for taking courses in a program and why some courses should be taken in a particular order.

Questions that can be answered with a curriculum map:

- In core courses, are all outcomes addressed, and in a logical order?
- Do all core courses address at least one outcome?
- Do multiple offerings of the same course address the same outcomes, at the same levels?
- Do some outcomes get more coverage than others?
- Are all outcomes first introduced and then reinforced?
- Are students expected to show high levels of learning too early?
- Do students practice all outcomes before being assessed, e.g., in the capstone?
- Do all students, regardless of which electives they choose, experience a coherent progression and coverage of all outcomes?
- What do the electives, individually and collectively, contribute to the achievement of the student learning outcomes?

PART VIII - Types of Assessment

The College is committed to an institution-wide, ongoing assessment process and recognizes that the ultimate purpose of assessment is to enhance student development opportunities; thus, assessment activities must be diverse and occur at various levels.

Levels of Assessment

Institution: At this level, assessment activities will measure institutional success in meeting the goals of the College as stated in the Mission Statement The Student Learning Outcomes adopted by the College are the nationally recognized AAC&U Essential Learning Outcomes.

Programs: Assessment of SEARK programs will address, on a division and department level, goals that are comprehensive but clearly defined. In addition, program assessment will evaluate the effectiveness and relevance of courses by continuing to measure student goals, program and degree requirements, and student demand for courses.

Courses: Assessment on this level occurs in the classroom where instructors clearly measure course outcomes.

Formative and Summative Assessment

Formative assessment is taken as students progress through a course and is intended to identify areas of learning that need to be improved before the end of the course.

Newcastle University (2017) in England contends that "Formative assessment provides a useful way of giving students feedback and assessing their existing knowledge without affecting their eventual grades." Monroe County Intermediate School (2018) holds that formative assessment "occurs in the short term, as learners are in the process of making meaning of new content and of integrating it into what they already know. Feedback to the learner is immediate (or nearly so), to enable the learner to change his/her behavior and understandings right away. Formative

assessment also enables the teacher to "turn on a dime" and rethink instructional strategies, activities, and content based on student understanding and performance." While Carnegie Mellon University (2016) points out: "The goal of formative assessment is to monitor student learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning."

Summative Assessment measures student achievement of course outcomes documenting student learning at the end of the course.

Carnegie Mellon University (2016) points out, "The goal of summative assessment is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark. Summative assessments are often high stakes, which means that they have a high point value. Examples of summative assessments include a midterm exam or a final project." Summative Assessment can show "strengths and weaknesses of curriculum and instruction, with improvements affecting the next year's/term's students" (Monroe County Intermediate School District 2018).

Indirect and Direct Assessment

Indirect assessment of student learning measures students' perceptions of their knowledge or skill gains. Indirect assessment reporting methods include student surveys, self-evaluations, and other self-reporting methods. In other words, "An indirect assessment method is based upon a report of perceived student learning. Indirect measures of assessment provide opportunities for students to reflect on their learning and inform the reviewers their perceptions of their learning experience" (Palomba & Banta, 1999).

Examples of Indirect Assessment Tools*

- Written surveys and questionnaires
- Exit and other interviews
- Focus groups

Direct assessment of student learning is an evaluation of student work designed to test attainment of learning outcomes. Direct assessment reporting methods include pre-/posttests, rubrics, exams, and similar professional evaluations. Another definition of direct assessment methods requires "students to demonstrate knowledge and skills and provide data that directly measure achievement of expected outcomes. That is, students must actively do something observable or measurable using the knowledge and skills" they acquired in their course or program (Lincoln Land Community College 2018). One contention is: "The strength of direct measurement is that faculty members are capturing a sample of what students can do, which can be very strong evidence of student learning. A possible weakness of direct measurement is that not everything can be demonstrated in a direct way, such as values, perceptions, feelings, and attitudes" (Santa Rosa Junior College 2006).

Examples of Direct Assessment Tools*

- Exit and other interviews
- Standardized exams
- Locally developed assessments
- Portfolios
- Performance appraisals
- External examiner
- Oral exams

*Whether or not a particular assessment method is direct or indirect depends on the nature of what is being measured and how the method is being used.

PART X - Course Assessment

Why Course Assessment?

Each instructor is responsible to ensure their students are not only taught the course content but that the students learn it as well. Course assessment is done by creating assessment tools that measure the course outcomes. The course outcomes are the overarching, measurable, and essential mastered content or knowledge that should reflect the skills, competencies, and knowledge the students have achieved and can demonstrate upon successful completion of the course. Reporting on course assessments has dual purposes. First, it provides evidence for accreditation that the College's courses are indeed assessing student learning at the course level. Secondly, it provides an opportunity for the instructors to reflect on their teaching and make improvements for future courses. The knowledge of how students learn and process their learning is a powerful teaching tool.

Course assessment can happen in many ways, and it is up to the instructors of that course to decide exactly what outcome and assessment tool they would like to report. There are two suggested approaches that can be taken to conducting course assessment:

- 1) Individual instructor assessment An individual instructor could assess a new technique used in the class to accomplish a particular course outcome, such as a specific lesson and activity used that leads up to the outcome.
- 2) A shared assessment conducted by a set of the same course A group of instructors who teach the same course can conduct a shared assessment like a pre- and post-test, a shared rubric, or shared questions on an exam.

Course Assessment Timeline

Each semester, each instructor will report data in Xitracs on the assessment of course-level outcomes in their classes. The report will be due the same day that grades are due for that semester.

Course Assessment Evaluation Process

Once the course assessment reports have been submitted, the Assessment Committee will review the data. Additionally, the course assessment reports will be made available to the individual instructors who submitted them to act as a record of assessment conducted by that individual instructor.

A report of the instructors' participation in completing a course assessment report will be given to the appropriate dean at the beginning of the following semester.

PART XI - Co-Curricular Assessment

Why Co-Curricular Assessment?

In 1994, the American College Personnel Association (ACPA) developed the Student Learning Imperative which called for higher education institutions to create "conditions that motivate and inspire student to devote time and energy to educationally-purposeful activities." This means that colleges should be helping students connect their in-class experiences with out-of-class experiences focusing on the institution-level outcomes. The HLC also has criteria addressing cocurricular activities, 3.E.1. States, "Co-curricular programs ... contribute to the educational experience of its students," then in 4.B.2, "The institution assesses achievement of learning outcomes that it claims for its...co-curricular programs."

Co-curricular assessment is important as, unlike the controlled educational environment of the classroom, it can provide essential data that students can and are applying the learning outcomes to their lives, better demonstrating our college's dedication to lifelong learning.

Co-Curricular Assessment Timeline

At the beginning of the academic year, the Assessment Committee will consult with Student Services on which scheduled events could be assessed for the SLOs.

Before each of these events, the Assessment, Program, and Training Coordinator will work with the Student Life Coordinator in order to develop proper assessment tools for each event as the events have varying formats and intended audiences.

PART XII - Program Assessment

Why Program Review?

Per HLC Criterion 4.A.1, "the institution maintains a practice of regular program reviews," and while accreditation is the driving force behind program review, it is not the document's ultimate purpose. It is an opportunity to review the history of the program to determine how the program

is performing and if the program needs to change its direction due to market or educational trends. The review should be conducted knowing that it will be used to inform budget and financial decisions, increase agility to respond to market and educational trends, and to provide an avenue for discourse within the program and the institution at large.

Program assessment will follow the procedure and timeline outlined in the Program Review Handbook

Student Learning Assessment Glossary

Add-on Assessment: Additional tasks that go beyond the course requirements and are usually given outside of the classroom. Because they are not normally part of the course grading structure, students are often less motivated to perform well (Stanford).

Assessment: The systematic process of determining educational objectives, gathering, using, and analyzing information about student learning outcomes to make decisions about programs, individual student progress, or accountability. Methods used to analyze student learning outcomes or achievement of program objectives.

Assessment Plan: A document used to summarize the relationship between program outcomes and courses, course assignments, or course syllabus objectives to examine congruence and to ensure that all outcomes have been sufficiently structured into the curriculum.

Benchmark: A criterion-referenced objective performance datum that is used for comparative purposes. A program can use its own data as a baseline benchmark against which to compare future performance. It can also use data from another program as a benchmark. In the latter case, the other program often is chosen because it is exemplary, and its data are used as a target to strive for, rather than as a baseline (James Madison University).

Bloom's Taxonomy: The extent and rigor of learning as defined by six levels by Benjamin Bloom: (1- Knowledge; 2- Recall and Comprehension; 3- Application; 4- Analysis; 5- Synthesis; 6Evaluation); characterized by action verbs.

K-A-S (Knowledge-Application-Synthesis): A condensed version of Bloom's Taxonomy using one level to represent two levels: K (Levels 1 and 2), A (Levels 3 and 4), and S (Levels 5 and 6). Often used in developing curriculum maps to show progression of student knowledge.

Capstone Course: A course that encompasses educational experience and provides a summative demonstration of competencies.

Closing the Loop: Evaluative steps in the assessment process that lead to program improvement. This is accomplished by reviewing the data collected in course assessment and discussing possible methods of course or program educational improvement or revision.

Co-curricular: Activities, programs, and learning experiences that complement, in some way, what students are learning in school - i.e. experiences that are connected to or mirror the academic curriculum (EdGlossary).

Competency: The demonstration of the ability to perform a specific task or achieve a specified criterion.

Course-level Assessment: Assessment of student- learning outcomes in a specific course. Faculty members engage in course assessment by evaluating student performance on assignments, projects, and exams, and then using that information to improve student learning. The focus is on understanding the performance of an entire class or the effectiveness of the course across multiple sections.

Course Learning Outcomes: A demonstrable competency at a certain level of proficiency (what does the student know; what can the student do); outcomes must be measurable for the sake of assessment. Measurement can be both objective (quantifiable) and/or subjective (qualitative).

Course Objectives: Detailed aspects of the course that are accomplished by the successful completion of the course outcomes. Refers to the specific knowledge, skills, or attitudes that students are expected to achieve through their college experience.

Curriculum Mapping: Curriculum mapping is a process for collecting and recording curriculumrelated data to identify core skills and content taught, processes employed, and assessments used for each course and level in a degree program. The purpose of a curriculum map is to document the relationship among the components in the curriculum, and ultimately, to create a more coherent curriculum. A curriculum map can be used for analysis, communication, and planning.

Direct Assessment Methods: Direct measures of student leaning require student to display their knowledge and skills as they respond to the instrument itself. Objective tests, essays, presentations, and classroom assignments all meet this criterion (James Madison University).

Embedded Assessment: Tasks that are integrated into the course curriculum. They usually involve classroom assessment techniques but are designed to collect specific information on program learning outcomes. These assessments are typically graded by course instructors and then pooled across sections to evaluate student learning at the discipline or program level. Embedded assessments are tied to the grading structure in the course (Stanford).

Evaluation: One or more processes for interpreting the data and evidence accumulated through assessment processes. Evaluation determines the extent to which student outcomes are being attained. Evaluation results in decisions and actions regarding program improvement.

Formative Assessment: The gathering of information about student learning—during the progression of a course or program which is usually repeated—to improve the learning of those

students. Example: reading the first lab reports of a class to assess whether some or all students in the group need a lesson on how to make them succinct and informative (Leskes 2002).

General Education: A philosophy of education that empowers individuals with broad knowledge, transferrable skills, and a strong sense of values, ethics, and civic engagement. The specific choice of major matters far less than the knowledge and skills gained through all studies and experiences in college (AAC&U).

Higher Learning Commission: The review commission for accreditation within NCA (North Central Association of Colleges and Schools).

Indirect Assessment Methods: Methods such as surveys and interviews that ask students to reflect on their learning rather than to demonstrate it (James Madison University). Reflection by students and others on learning experiences, adequacy of a program, etc.; may be administered by surveys, course embedded activities (such as minute papers), focus groups, job placement rates, transfer studies success, etc.

Information Literacy: The ability to acquire, evaluate, organize, maintain, interpret, and communicate knowledge.

Institutional Assessment: A process of assessing institutional outcomes in relationship to mission, values, and strategic planning.

Institutional Learning Outcomes: Broad- based learning outcomes reflecting common educational knowledge and skills from all programs that all graduates of the institution will acquire. Outcomes should align with the institution's mission.

Inter-rater reliability: The degree to which different raters/observers give consistent estimates of the same phenomenon.

Outcomes-Based Assessment: Measures of performance against defined, measurable outcomes. Faculty and administrators purposefully plan the program to support student achievement of the outcomes, implement methods to systematically identify whether the end results have been achieved, and use the results to plan improvements or make recommendations for resource reallocation or requests. Assessment often conveys the same meaning.

Performance Measures: Specific, measurable statements identifying student performance(s) required to meet the outcome; confirmable through evidence.

Portfolios: A portfolio is a collection of work developed across varied contexts over time. The portfolio can advance learning by providing students and/or faculty with a way to organize, archive and display pieces of work (Regis University). An e-portfolio is an electronic format of a collection of work developed across varied contexts over time. The electronic format allows faculty and other

professionals to evaluate student portfolios using technology, which may include the Internet, CD-ROM, video, animation, or audio.

Program Learning Outcomes: The knowledge, skills, and abilities students should possess when they complete a program. Educational or degree programs are more than a collection of random courses. Educational programs prepare students for a range of particular outcomes that can be stated in measurable terms. Program assessment seeks to determine the extent to which students in the program can demonstrate these outcomes.

Program Review: The administrative and peer review of academic programs conducted on a sixyear cycle, the results of which are reported to the CMU Board of Trustees. This review includes a comprehensive analysis of the structure, processes, and outcomes of the program. The outcomes reported in the program reviews include program outcomes (e.g. costs, degrees awarded) as well as student learning outcomes (i.e. what students know and can do at the completion of the program) (Northern Illinois University).

Qualitative Data: Data in which the values of a variable differ in kind (quality) rather than in amount.

Quantitative Data: Data in which the values of a variable differ in amount rather than in kind.

Reliability: The characteristic of a measuring instrument to obtain similar results with repeated administrations.

Rubrics: Specific sets of criteria that clearly define for both student and teacher what a range of acceptable and unacceptable performance look like. Criteria define descriptors of ability at each level of performance and assign values to each level. Levels referred to are proficiency levels which describe a continuum from excellent to unacceptable product. (SABES) A scoring tool that lists the criteria for a piece of work, or "what counts" (for example, purpose, organization, and mechanics are often what count in a piece of writing); it also articulates gradations of quality for each criterion, from excellent to poor.

Analytic Rubrics: Two-dimensional rubrics with defined levels of achievements as columns and assessment criteria as rows. Allows instructors to assess students' achievements based on multiple criteria using a single rubric. It appears in table form. (Queen's; Depaul)

Holistic Rubrics: One-dimensional rubrics used to assess students' overall achievement on an activity or item based on the predefined achievements levels. The performance descriptions are written in paragraphs and in full sentences. (Queen's; Depaul)

Standardized Assessment: A standard- based assessment of learner achievement in relation to set standards.

Student Artifacts: A collection of papers, projects, documents, etc., which represent your knowledge, competency, understanding, and achievement of identified goals and learning incomes.

Student Learning Outcomes: Demonstration of what students will be able to know, do, and value at the end of their degree program. An expression of what a student will demonstrate on the successful completion of a module, course, or program of study.

Summative Assessment: Evaluation at the end of a unit or units of instruction or an activity or plan to determine or judge student skills and knowledge or effectiveness of a plan or activity (Leskes 2002). The gathering of learning information at the conclusion of a course or program. When used for improvement, impacts the next cohort of students taking the course or program. Example: examining student final exams in a course to see if certain specific areas of the curriculum were understood less well than others.

Validity: The degree to which a test or other assessment measure measures what it is designed to measure. The extent to which inferences and actions made based on test scores are appropriate and accurate.

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KNOWLEDGE	COMPREHENSION	APPLICATION
(Remembering)	(Understanding)	(Applying)
Learn specific facts, ideas vocabulary;	Ability to grasp the meaning of material;	Ability to use learned material in new
emembering/recalling information or	communicate knowledge;	and concrete situations;
specific facts	understanding information without	use learned knowledge and interpret
	relating it to other material	previous situations
Introduction	n of knowledge	Practice kno
by doing		by doing
collect, copy,	alter, associate,	acquire, adopt, apply, assemble,
define, describe,	calculate, categorize, change,	capitalize, construct, consume,
examine,	communicate, convert,	demonstrate, develop, discuss,
find,	distinguish,	experiment,
group,	expand, explain,	formulate,
identify, indicate,	inform,	manipulate,
label, list, locate,	name alternatives,	organize,
match,	outline,	relate, report,
name,	paraphrase,	search, show, solve novel problems,
omit, observe,	rearrange, reconstruct, relate, restate	tell consequences, try,
point, provide,	(own words),	use, utilize
quote,	summarize.	
read, recall, recite, recognize, repeat,	tell meaning of,	
reproduce,	translate,	
say, select, sort, spell, state,	understand,	
tabulate, tell, touch,	verbalize,	
underline,	write	
who, when, where, what	WINE	
Skills Demonstrated:		Skills Demonstrated:
Observation and recall of information	•Understanding information	•Use information
•Knowledge of dates, events, places	•Grasp meaning	•Use methods, concepts, theories in
•Knowledge of major ideas	•Translate knowledge into new context	new situations
•Master of subject matter	 Interpret facts, compare, contrast 	 Solve problems using required skills or
- Master of subject matter	•Order, group, infer causes,	knowledge
	Predict consequences	knowledge
What is?	How would you classify the type of?	How would you use?
How is?	How would you compare/contrast?	What examples can you find to?
Where is?	Will you state or interpret in your own	How would you solveusing what
When did happen?	words?	you have learned?
How did ?	How would you rephrase the meaning?	
Why did?	What facts or ideas show?	How would you show your
How would you describe?	What is the main idea of?	understanding?
When did?	Which statements support?	What approach would you use to?
Can you recall?	Can you explain what is happeningwhat	
How would you show?	is meant?	learned to develop?
	What can you say about?	What other way would you plan to?
Can you select ?	Which is the best answer?	What would result if?
-	which is the next answer	triat nouro result it:
Who were the main?		Can you make use of the facts to 2
Can you select? Who were the main? Can you list three? Which one _2	How would you summarize?	Can you make use of the facts to?
Who were the main? Can you list three? Which one?		What elements would you choose to
Who were the main? Can you list three?		What elements would you choose to change?
Who were the main? Can you list three? Which one?		What elements would you choose to change? What facts would you select to show?
Who were the main? Can you list three? Which one?		What elements would you choose to change?

KNOWLEDGE	COMPREHENSION	APPLICATION
(Remembering)	(Understanding)	(Applying)
Learn specific facts, ideas vocabulary;	Ability to grasp the meaning of material;	Ability to use learned material in new
remembering/recalling information or	communicate knowledge;	and concrete situations;
specific facts	understanding information without	use learned knowledge and interpret
	relating it to other material	previous situations
Assessment		Assessment
Events	Drama	Map
People	Skit	Project
Recordings	Cartoon	Forecast
Newspapers	Story	Diagram
Magazine articles	Tape recording	Illustration
Television shows	Speech	Paper which follows an outline
Radio	Photograph	Solution
Text readings	Diagram	Question
Films/videos	Graph	List
Plays	Own statement	Project
Film strips	Model	Drama
	Conclusion	Painting
	Implication based on idea	Sculpture
	Casual relationships	
	Summary	
	Analogy	
	Outline	
	Compare	
Multiple-choice question	tutorials	Multiple choice
Fill-in blank	Q&A (oral, one-minute papers)	Short answer
True/false	Student presentations or demonstrations	Essay
Matching	within small groups (peer reviews)	Tutorials
Short answer	Exam - Describe, explain, summarize,	Simulations
Flashcards	identify or select	Case Studies
Quizzes	1.1. (APRIL 1.1. (1.1.))	Text problems
Student recitations		Student presentation
Exams - Define, label, list, reproduce		Exam - Apply, use, solve, demonstrate,
		employ
		Problems sets

ANALYSIS	SYNTHESIS	EVALUATION
(Analyzing)	(Creating)	(Evaluating)
Ability to break down material into its	Ability to put parts together to form a	Ability to judge the value of material
component parts and perceive	new whole; use elements in new	(statement, novel, poem, report, etc.) fo
interrelationships	patterns and relationships	a given purpose;
		judgement is based on given criteria.
ledge learned	Demonstrates maste	ry of knowledge learned
	by doing	
analyze, arrange,	alter,	appraise, argue, assess,
break down,	build,	challenge, choose, conclude, criticize,
categorize, classify, compare, contrast,	compose, construct, create,	critique,
deduce, determine, diagram,	develop,	debate, decide, defend, discriminate,
differentiate, discuss causes, dissect,	estimate,	discuss, document, draw conclusions,
distinguish,	form a new,	editorialize, evaluate,
give reasons,	generate,	grade,
order,	hypothesize,	interpret,
separate, sequence, survey,	imagine, improve, infer, invent,	judge, justify,
take apart, test for,	modify,	prioritize,
why	plan, predict, produce, propose,	rank, rate, recommend, reject,
	reorganize, rewrite, revise,	support,
	simplify, synthesize	validate,
		weigh
- 0	Skills Demonstrated:	- Common and discriminate between
 Seeing patterns Organization of parts 	 Use old ideas to create new ones Generalize from given facts 	 Compare and discriminate between ideas
•Recognition of hidden meanings	Relate knowledge from several areas	 Assess value of theories, presentations
 Identification of components 	Predict, draw conclusions	•Make choices based on reasoned
a components		arguments
What are the parts of?	Do you agree with the actions? With	Do you agree with the actions? With
How is related to?	the outcomes?	the outcomes?
Why do you think?	What is your opinion of?	What is your opinion of?
What is the theme?	How would you prove? Disprove?	How would you prove? Disprove?
What motive is there?	Can you assess the value or importance	Can you assess the value or importance
Can you list the parts?	of?	of?
What inference can you make?	Would it be better if?	Would it be better if?
What conclusions can you draw?	Why did they (the character) choose?	Why did they (the character) choose?
How would you classify?	What would you recommend?	What would you recommend?
How would you categorize?	How would you rate the?	How would you evaluate?
Can you identify the different parts?	What would you cite to defend the	How could you determine?
What evidence can you find?	actions?	What choice would you have made?
What is the relationship between?	How would you evaluate?	What would you select?
Can you make a distinction between?	How could you determine?	How would you prioritize?
What is the function of?	What choice would you have?	What judgment would you make
What ideas justify?		about?
How would you estimate the results		Based on what you know, how would
for?		you explain?
What facts can you compile?		What information would you use to
Can you construct a model that would		support the view?
change?		How would you justify?
Can you think of an original way for		What data was used to make the
the?		conclusion?
	1	Why was it better that?

ANALYSIS	SYNTHESIS	EVALUATION
(Analyzing)	(Creating)	(Evaluating)
Ability to break down material into its	Ability to put parts together to form a	Ability to judge the value of material
component parts and perceive	new whole; use elements in new	(statement, novel, poem, report, etc.) for
interrelationships	patterns and relationships	a given purpose;
		judgement is based on given criteria.
	Assessment	
Questionnaire	Article	Conclusion
Argument	Invention	Self-evaluation
Parts of propaganda	Report	Recommendation
Word defined	Set of rules	Valuing
Statement identified	Set of standards	Court trial
Conclusion checked	Game	Survey
Syllogism broken down	Machine	Evaluation
Report	Experiment	Standard compared
Survey	Play	Standard established
Graph	Book	Group discussion
0.000.000	Alternative course of action	660,201,004,004,004,007,00
	Question	
	Song	
	Formulation of hypothesis	
Multiple choice	Multiple choice	Multiple choice
Wulldple choice		
		Essay
Essay	Essay	Essay Project
Essay Project		Essay Project Portfolio
Essay Project Portfolio (on analyzing case studies or	Essay Project	Project
Essay Project Portfolio (on analyzing case studies or clinical experiences)	Essay Project Portfolio	Project Portfolio
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based,	Essay Project Portfolio Simulation Presentation	Project Portfolio Simulation
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play)	Essay Project Portfolio Simulation Presentation	Project Portfolio Simulation Presentation
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation	Essay Project Portfolio Simulation Presentation Paper	Project Portfolio Simulation Presentation Paper Virtual labs
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation	Essay Project Portfolio Simulation Presentation Paper Virtual labs	Project Portfolio Simulation Presentation Paper Virtual labs
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures,
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies Discussion labs	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address recurring problems)	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies Discussion	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address recurring problems) Interviews with experts	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates Exams - Evaluate, argue, assess, defend
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies Discussion labs graphic organizers Exam - Analyze, compare, distinguish,	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address recurring problems) Interviews with experts Exam - Develop, plan, prepare, propose,	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates Exams - Evaluate, argue, assess, defend judge, predict, rate, support
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies Discussion labs graphic organizers Exam - Analyze, compare, distinguish, examine (Take home, online, or face-to-	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address recurring problems) Interviews with experts Exam - Develop, plan, prepare, propose, construct, design, formulate, create	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates Exams - Evaluate, argue, assess, defend judge, predict, rate, support
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies Discussion labs graphic organizers	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address recurring problems) Interviews with experts Exam - Develop, plan, prepare, propose, construct, design, formulate, create Portfolio	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates Exams - Evaluate, argue, assess, defend judge, predict, rate, support
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies Discussion labs graphic organizers Exam - Analyze, compare, distinguish, examine (Take home, online, or face-to-	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address recurring problems) Interviews with experts Exam - Develop, plan, prepare, propose, construct, design, formulate, create Portfolio Design and build a model	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates Exams - Evaluate, argue, assess, defend judge, predict, rate, support
Essay Project Portfolio (on analyzing case studies or clinical experiences) Simulation (computer-based, mannequins, part task trainers, role play) Presentation Paper Virtual labs case studies Discussion labs graphic organizers Exam - Analyze, compare, distinguish, examine (Take home, online, or face-to-	Essay Project Portfolio Simulation Presentation Paper Virtual labs case studies (Class or small group discussions assemble relevant info to produce a hypothesis, plan to address recurring problems) Interviews with experts Exam - Develop, plan, prepare, propose, construct, design, formulate, create Portfolio Design and build a model Create a work of art	Project Portfolio Simulation Presentation Paper Virtual labs case studies - Small groups discussions on appropriateness of procedures, results Debates Exams - Evaluate, argue, assess, defend judge, predict, rate, support