

# COMPREHENSIVE ASSESSMENT

# PLAN



ASSESSMENT AS SCHOLARSHIP AND LEARNING

**FALL 2006 Edition**

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# **American Association for Higher Education**

## **Principles of Good Practice for Assessing Student Learning**

- ▶ **The assessment of student learning begins with educational values.**
- ▶ **Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.**
- ▶ **Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.**
- ▶ **Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.**
- ▶ **Assessment works best when it is ongoing, not episodic.**
- ▶ **Assessment fosters wider improvement when representatives from across the educational community are involved.**
- ▶ **Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.**
- ▶ **Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.**
- ▶ **Through assessment, educators meet responsibilities to students and to the public.**

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## INTRODUCTION

This Comprehensive Assessment Plan is intended to assist Casper College faculty, staff and administration in developing assessment plans at the institutional, program and course levels by providing a brief introduction to outcomes assessment processes. This document is compiled from various sources (see *Bibliography*) and reflects current best practices in assessment of student learning outcomes.

The Assessment Coordinator will provide further consultation and support to assist in the development of meaningful, manageable, and sustainable assessment practices.

- ▶ develop mission, goals, and outcomes statements
- ▶ select appropriate assessment methods
- ▶ develop and administer assessment procedures and analyze their results

### Definition

*Assessment* is the systematic collection, review, and use of information about educational programs undertaken for improving student learning and development. The goal of assessment is to examine the quantitative and qualitative evidence generated about student competence, to use this evidence to improve the learning of current and future students, and to present this information to external stakeholders.

In other words, assessment is the process of gathering, analyzing and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, value, and can do with their knowledge and skills as a result of their experiences; the process culminates when assessment results are used to improve subsequent learning.

Assessment is a repeating cycle that involves the following basic actions:

- ▶ Making expectations of student learning explicit and public
- ▶ Setting appropriate criteria and high standards for learning quality
- ▶ Systematically gathering, analyzing and interpreting evidence to determine how well performance matches those expectations and standards, and
- ▶ Using the resulting information to document, explain, and improve program performance

The *purpose* of assessment activities is fourfold:

- ▶ To determine whether or not intended outcomes are being achieved and validate the need to undertake and continue certain initiatives
- ▶ To inform faculty and other internal and external decision-makers about the relevant issues that can impact the program and student learning
- ▶ To provide information that can be used to focus conversations about policy, programs, and practices and determine how the policies, programs, and practices can be improved, and
- ▶ To *expand* the scholarship of assessment or to extend the foundation of knowledge underlying effective learning, teaching, and assessment.

### Philosophy of Assessment

Casper College's philosophy of assessment rests on two fundamental assumptions:

- ▶ *Effective assessment is essentially learner-centered.*

In contrast to the traditional teacher-centered perspective, the learner-centered perspective essentially asks "How will students learn it?" and "How well did they learn it?" instead of "How will I teach it?" and "How well did I teach it?"

- ▶ *Effective assessment is a systemic endeavor.*

Assessment is conceptualized as a system. In a system, each part affects the behaviors and properties of other parts and of the whole system. The outcome of the assessment system is based on how each part is interacting with the rest of the parts, not on how each part is doing. A systems framework is characterized by the coherence of institutional assessment efforts and their horizontal and vertical integration.

### Benefits of Assessment

- ▶ Assessment is essentially a scholarly activity that leads to new discoveries, connections, applications, and improved teaching and student learning
- ▶ Collecting assessment data allows faculty, administration, and staff to verify their assumptions and to identify discrepancies about what students learn
- ▶ Faculty, administration, and staff can structure their programs around agreed-upon goals and learning outcomes
- ▶ Assessment data provide baselines for monitoring or demonstrating improvement

- ▶ Assessment provides accountability information for internal and external purposes
- ▶ Assessment is a credibility and trust-building exercise that creates public dialogue with outside audiences asking for accountability. Assessment can lead to better communication with others about what the program is doing
- ▶ Assessment feedback on program successes can be used for public relations – with legislators, trustees, campus administrators, employees, and prospective students and their families
- ▶ Assessment helps create a shared academic culture of evidence dedicated to assuring and improving the quality of higher education

**Functions of Assessment:**

- ▶ *Formative* assessment is assessment done for the sake of program improvement. The goal is -to provide feedback, with the aim of improving teaching, learning, and the curricula, to identify students' strengths and weaknesses, and to assist institutions with appropriate placement of students based on their particular learning needs.
- ▶ *Summative* assessment is assessment done for the evaluation and accountability purposes. The goal is --to use credible information to make decisions regarding allocation of funds, to aid in decision-making at the program level (e.g., personnel, certification,etc.), and to meet demands of accrediting bodies, state and federal agencies.

**Characteristics of Effective Assessment Program**

- ▶ *Integrated.* Assessment plans should be departmentally/divisionally driven, but also tied to the college mission and strategic goals, carrying through themes related to outcomes in the major and general education
- ▶ *Ongoing.* Assessment should be part of the ongoing business of the department/division, not only a priority during program review cycles or prior to accreditation visits.
- ▶ *Implemented gradually.* Assessment needs to become part of the culture slowly, implemented in carefully orchestrated steps over time.
- ▶ *Multi-faceted.* An effective assessment program utilizes multiple methods to assess each learning outcome, assesses multiple samples, and assesses students in different phases of learning.
- ▶ *Pragmatic.* To be truly useful, assessment plans must stay on a practical level with obvious implications to faculty, administrators, staff and students.
- ▶ *Self-renewing.* Assessment data and information must feed back into the system, both on the institutional and department/division level.

## Student Learning Outcomes

Student Learning Outcomes at Casper College are defined at the Institution Level, Program Level, and Course Level. Each level is designed to complement each other, and represents the knowledge, skills, and abilities that are expected of our students upon graduation from Casper College.

### ► Institution Level

At the Institution Level, student learning is assessed on the broad and overarching outcomes that students are expected to learn upon completion of an academic program, regardless of discipline. Student participation in periodic surveys and interviews are required to evaluate the effectiveness of students' achieving desired learning outcomes.

### ► Program Level

At the Program Level student learning is assessed on the skills, values, and knowledge that students are expected to know upon graduation from a particular degree program. A general education test, sponsored by the Educational Testing Service (ETS), is taken by students. Additionally, subject-specific standardized national testing is used to measure student learning at the program level. The tests' results are used only to inform the institution and the student of the student's performance in a given subject area; their results are not calculated in the student's grade point average or considered as part of the student's academic performance. Writing rubrics are also used to evaluate the effectiveness of students achieving desired learning outcomes at the degree program level.

### ► Course Level

At the Course Level, student learning is assessed on the skills, values, and knowledge that students are expected to know upon completion of a course. At this level, faculty members summarize the assessment results for the entire class, rather than for individual students, and these results are used to continually improve on courses and teaching effectiveness. Course developed tests, student participation in discussions, student research projects/papers, and writing assignments are some of the requirements used to evaluate the effectiveness of students achieving desired learning outcomes at course level. End of course surveys are also used to monitor and develop teaching effectiveness, and maintain and improve on the overall quality and soundness of programs and courses.

## INSTITUTION LEVEL ASSESSMENT

### ► Wyoming Community College Commission – Core Indicators of Student Success

- (1) Student Progress: Embedded in a developmental philosophy, student success and achievement is measured by tracking both intent and behavior.
  - a. Core Indicator 1: Student Goal Attainment
  - b. Core Indicator 2: Persistence (Fall to Fall)
  - c. Core Indicator 3: Degree Completion Rates
- (2) Workforce Development: Focus is on meeting the dynamic needs of a diverse workforce.
  - a. Core Indicator 4: Placement Rate in the Workforce
  - b. Core Indicator 5: Employer Assessment of Students
  - c. Core Indicator 6: Licensure/Certification Pass Rates
  - d. Core Indicator 7: Client Assessment of Programs and Services
- (3) General Education: Directed at building general skills and broad analytical capabilities to support competent functioning in everyday life.
  - a. Core Indicator 8: Demonstration of Critical Literacy Skills
- (4) Transfer Preparation: Tracking transfer patterns developed from a traditional assumption that students will quickly progress from high school, to community college to a baccalaureate pursuit
  - a. Core Indicator 10: Number and Rate who Transfer
  - b. Core Indicator 11: Performance after Transfer
- (5) Developmental Skills: Enhancing and reinforcing the skills of under-prepared students becomes essential to ensure success in subsequent college-level courses
  - a. Core Indicator 12: Success in Subsequent, Related Coursework
- (6) Outreach: Based on the social, economic and cultural circumstances in each college's local setting, these relationships are unique and grow out of the specific needs of the college service area.
  - a. Core Indicator 13: Participation Rate in the Service Area
  - b. Core Indicator 14: Responsiveness to Community Needs

▶ **Collegiate Assessment of Academic Proficiency (CAAP)** to assess reading, English, and mathematics skills. Evaluation of student performance over time and comparing our students to similar student helps determine curriculum, instruction, course requirements etc.

▶ **Learning Communities** -Structured system that enrolls a common group of students focused on building essential skills for college success while preparing students for college level math and English.

▶ **Focus Groups**

▶ **Surveys**  
Registration

## PROGRAM LEVEL ASSESSMENT

- ▶ General Program Level Assessment
- ▶ General Education Assessment Plan
- ▶ Developmental Education Assessment Plan

▶ General Program Level Assessment Plan

▶ This information can be found as a form at .....

1. Date:
2. Name:
3. Title:
4. Email:
5. Phone:
6. Division:
7. Degree Program Covered by this Assessment Plan\*:
8. Does this program offer a distance learning degree?  Yes  No

\*Note: Please complete a separate Assessment Plan form for each degree program.

### A. CONCEPTUAL ASSESSMENT PLAN COMPONENTS:

Assessment enables an understanding of what students are learning as a result of the program. Assessment findings can be used for a variety of purposes including making decisions regarding curriculum and instruction as well as providing feedback to students. Mission and goals communicate to students the expected learning outcomes for a degree program.

1. List your program mission.
2. List your Program Goals.
  - 1.
  - 2.
  - 3.
  - 4.
  - 5.
3. Below list the student learning outcomes in relation to the goals (i.e. Do the student learning outcomes reflect the goals, further the goals?)

Program Goal 1:

- Outcome 1.1
- Outcome 1.2
- Outcome 1.3

Program Goal 2:

- Outcome 2.1
- Outcome 2.2
- Outcome 2.3

Program Goal 3:

- Outcome 3.1
- Outcome 3.2
- Outcome 3.3

Program Goal 4:

- Outcome 4.1
- Outcome 4.2

Outcome 4.3

Program Goal 5:

- Outcome 5.1
- Outcome 5.2
- Outcome 5.3

Additional Goals/Outcomes – Please list below

**B. IMPLEMENTATION ASSESSMENT PLAN COMPONENTS:**

It is important to create a detailed implementation plan that aligns each student learning outcome with each of the following items:

- (a) Learning outcome
- (b) Measure of the outcome
- (c) Analysis method for each measure
- (d) Timeline for analysis of each measure

1. Instructions: For each program level outcome, please provide information for each category listed below. Both direct and indirect measures should be utilized in your assessment plan. You are encouraged to utilize existing measures when feasible to keep the process manageable. You should also collect data throughout the program and not just at the end.

PROGRAM LEARNING OUTCOME	MEASURE OF OUTCOME	ANALYSIS METHOD FOR EACH MEASURE	TIMELINE FOR EACH MEASURE
Outcome 1.1			
Outcome 1.2			
Outcome 1.3			
Outcome 2.1			
Outcome 2.2			
Outcome 2.3			
Outcome 3.1			
Outcome 3.2			
Outcome 3.3			
Outcome 4.1			
Outcome 4.2			
Outcome 4.3			
Outcome 5.1			
Outcome 5.2			
Outcome 5.3			
Outcome ____			
Outcome ____			
Outcome ____			
Outcome ____			
Outcome ____			

**C. DESIGN AND USE**

It is critical that program level assessment plans be developed and approved by all faculty in the academic unit. In addition, include student input and external sources (e.g., national standards, advisory boards, employers, alumni, etc.) in the development of the assessment plan(s).

1. Describe the process through which your academic unit created this assessment plan. Include:
  - a. Timeline regarding when or how often this plan will be reviewed and revised.
  - b. How students were included in the process and/or how student input was gathered and incorporated into the assessment plan.
  - c. What external sources were consulted in the development of this assessment plan.
  - d. Assessment of the manageability of the plan in relation to departmental resources and personnel.

► **CRITERIA FOR REVIEW OF PROGRAM LEVEL ASSESSMENT PLANS**

1. The OUTCOMES selected for assessment are appropriately significant.
2. Assessment methods are adequate to measure student achievement. Multiple measures are used. The plan does not rely overly on a single type of measure.
3. The time frame described appropriate and workable. The plan takes advantage of current data sources and activities that are already in place?
4. It is clear who will do the assessments, collect and analyze data. There is appropriate faculty involvement and sharing of tasks.
5. There is a formal mechanism for reporting results of assessment and for summarizing results and to ensure that assessment provide information to be used in program improvement.
6. The plan is feasible, workable and affordable, given available resources. If possible, suggest ways to make the assessment process more effective and efficient.

► **The Outcomes Assessment Committee uses a rubric when reviewing Program Assessment Plan. The Review Program is located at [http://www.caspercollege.edu/faculty\\_staff/assessment/index.html](http://www.caspercollege.edu/faculty_staff/assessment/index.html)**

► **General Education Assessment Plan**

**I. Introduction and Background**

This assessment plan is intended to assist in the systematic assessment of the General Education program at Casper College. Because General Education is an all-college program that affects students and programs from across campus, every effort has been taken to develop a plan that incorporates the perspectives of the array of disciplines that compose the College. The major goal in this assessment plan is to assist in improving, as well as assuring, the quality of the General Education program.

**II. Definition and Philosophy of General Education**

1. The ability to explore and participate
  - A. Reasoning and Inquiry in Science – the study of physical and biological science
  - B. Math Computation – coursework that utilizes mathematics as a primary tool for problem solving
2. The ability to communicate
  - C. Communication – coursework that enhances the ability to communicate the written and spoken word
3. A comprehension of the relationship between the individual and the wider world
  - D. Human Behavior – the study of human behavior on the person, social, and political levels
  - E. Cultural Environment – the study of humanities and the fine and performing arts
4. Physical Education

► **Current CC General Education Plans**

**Reasoning and Inquiry in Science**

Assessment Instrument	Responsibility
ASTR 1000 Matrix	Science Faculty
GEOL 1100	Science Faculty
PHYS 1090, Pre-Post Tests	Science Faculty
BIOL 1000, Pre-Post Tests	Science Faculty
CAAP Test: Science Reasoning	DIR

**Math Computation**

Assessment Instrument	Responsibility
Post-test in DVST 0930	Math Faculty
Math Rubric for MATH 1000	Math Faculty, Faculty Review Team
CAAP Test: MATH 1400, MATH 1450	DIR
Student Survey	Math Faculty
Faculty Focus Group	Math Faculty

### **Communication**

Assessment Instrument	Responsibility
Writing Rubrics ENGL 1010, ENGL 1020	English Faculty
CAAP Tests: Reading, Writing Skills	DIR

### **Human Behavior**

Assessment Instrument	Responsibility
POLS 1000	Social Science Faculty
ANTH 1200	Social Science Faculty
ANTH 1300	Social Science Faculty
HIST 1211	Social Science Faculty

### **Cultural Environment**

Assessment Instrument	Responsibility
Student Attendance at Cultural Events	DIR
Student Focus Group Questionnaire	DOA
Creativity Assessment	DOA – In development

## **III. Assessment Plan Components:**

- ▶ **Guiding Principles for General Education Assessment**
- ▶ **Recommended Assessment Measures**
- ▶ **Example of Goals and Outcomes for General Education**
- ▶ **Recommendations for improving the General Education program**

### ▶ **Guiding Principles for General Education Assessment**

The following Guiding Principles have been developed, based on best assessment practices, to steer the direction, development, and implementation of the assessment plan. These principles should guide the assessment of student learning outcomes for the General Education program.

1. Student learning outcomes for General Education should be based on the educational values expressed in the General Education policy, consistent with the campus Assessment Policy.
2. Assessment of student learning outcomes for the General Education Program should be a campus-wide effort that requires involvement throughout the College community, and extends beyond the campus to alumni, employers, and other constituencies.
3. Assessment of student learning outcomes for the General Education Program should reflect an understanding of learning as multidimensional, integrated, and revealed in performance over time; therefore, a diverse array of assessment measures should be used.
4. Assessment of student learning outcomes for General Education should be on-going in order to monitor progress toward intended goals, and to stimulate continuous program improvement.
5. The major goal for assessing student learning outcomes should be the improvement of the General Education Program; therefore, information gathered should be used in the planning, continuous implementation, and evaluation of the program.
6. The implementation of the General Education Assessment Plan should begin with the common threads of the General Education program, including the vital areas of basic skills, and progress through all the elements of the program.

### ▶ **Recommended assessment measures**

1. The Academic Profile -
2. Writing Proficiency Examination (WPE) -  
The WPE is a major assessment device used to evaluate the proficiency of undergraduate writing skills. In addition, the WPE can also be utilized to accomplish the assessment of other GE goals.
3. Surveys of Student Perceptions -  
Surveys with questions specific to the goals of General Education are recommended in the assessment of student learning outcomes, particularly student perceptions. The CSSSE is currently being considered.
4. Portfolio Assessment -  
Portfolio assessment can be used as a direct measurement of student learning outcomes.
5. Embedded Exam Questions and Assignments -

Embedded questions are questions explicitly tailored to assess the GE program learning objectives embedded within course exams and assignments.

6. Oral Presentation Rubric -

► **Example of Goals and Outcomes for General Education**

Goal 1. Students can integrate and express ideas in written and oral forms in English

1.1 *Outcome 1* - Students demonstrate mastery of basic written and oral communication, including the ability to read and listen with understanding and critical discernment.

1.2 Recommended assessment measures: Written Communication

- a. The Academic Profile
- b. Writing Proficiency Examination
- c. Surveys
- d. Portfolio Assessment

1.3 Recommended assessment measures: Oral Communication

- a. Oral Presentation Rubric used in SPCH 1150
- b. Surveys

**Example Time Table for Assessment**

ASSESSMENT MEASURES	TIMELINE	GE GOALS AND OUTCOMES
1. Academic Profile Test	Every 3-5 years	Goal #1. Written Communication Goal #2. Critical Thinking Goal #3. Math Concepts & Quantitative Reasoning Goal #5. Sciences, Arts and Humanities
2. WPE	Annually Variable Every two years	Goal #1. Written Communication Goal #4. American Institutions Goal #6. Diversity and Ethics
3. Portfolio Assessment	Variable	Goal #1. Written Communication
4. Surveys	Variable	Goal #1. Written Communication Goal #1. Oral Communication Goal #4. American Institutions Goal #5. Sciences, Arts and Humanities Goal #6. Diversity and Ethics Goal #7. Lifelong Understanding GE Program as a Whole
5. Embedded Exam Questions	Annually	Goal #2. Critical Thinking Goal #3. Math Concepts & Quantitative Reasoning Goal #4. American Institutions
6. Rubric/oral presentations	Variable	Goal #1. Oral Communication

► **Recommendations for improving the General Education program.**

1. General education assessment should focus on blocks and groups of courses
2. Both qualitative and quantitative measures should be used
3. *Learning Communities* should be designed
4. Existing data already being collected should be used
5. Communication among the faculty teaching general education courses should be increased
6. Annual orientation to General Education for new faculty and adjunct faculty should be planned
7. Faculty workshops should address general education

## ► Developmental Education Assessment

The hallmark of an exemplary developmental education program (DVST) is an ongoing formative/summative evaluation process. As referenced in the certification process of the National Association of Developmental Education, this process should begin with a qualitative self-evaluation of every aspect of the program. Data gathering should include three levels of information—primary, secondary, and tertiary.

The primary level includes the numbers of students assessed, placed, and enrolled in developmental courses as well as the numbers of students who take advantage of certain services.

The secondary level includes course pass rates and pre-test/post-test score gains.

The tertiary level includes examination of global indicators, including success in the next sequential course, retention, and GPA.

Assessing the progress of developmental students presents unique challenges. First, many students in the developmental courses, especially Reading, have learning disabilities, both identified and undiagnosed. Thus, often they suffer from test anxiety and are not good test-takers.

Timed testing presents even more anxiety. Second, the developmental student is often an adult who has been out of school for many years and is not used to the format of today's tests. Because of these challenges, outcomes assessment should not be done using only traditional standardized tests. Untimed testing is preferable, or at least timing should be such that most students will finish the test. Finally, assessment should not be based on one test score alone. Instructors might need to use a variety of creative means to assess students' progress.

The National Association for Developmental Education recommends the following student academic performance criteria for research on course evaluation:

- a. gain scores from pre-test to post-test,
- b. grades in remedial/developmental courses,
- c. student completion rates for remedial/developmental courses,
- d. number of attempts required for students to pass remedial/developmental courses,
- e. grades in follow-up courses,
- f. cumulative grade point averages,
- g. number of terms participating students are retained, and
- h. overall student retention rates at the end of 3 years for community colleges.

Also, student satisfaction with courses and attitudes toward learning are important measures of success or failure in meeting course objectives. Attitudes can be measured with surveys or questionnaires or through student focus groups where students freely express their opinions.

### 2003 CC DVST Program Outcomes

1. 60% of students who successfully complete a DVST course will succeed in the next higher level course
2. 60% of students enrolled in a DVST course after midterms indicate on a student survey that they are more confident learners
3. 60% of students enrolled in a DVST class after midterms indicate on a student survey that they were properly placed in the DVST class
4. 70% of DVST faculty indicate in a focus group that their students were properly placed in a DVST course
5. 50% of students who successfully complete a DVST course obtain a certificate or a degree
6. Refer to specific course-level outcomes for specific student learning outcomes

Outcomes	Measurement	Time Frame	Results
1. 60% of students who successfully complete a DVST course will succeed in the next higher level course	Colleague data	Annually	These results will be sent back to the Math and English Depts for further review and to be added to the outcomes for specific DVST courses
2. 60% of students	DVST Cohort	Annually	These results will be

enrolled in a DVST course after midterms indicate on a student survey that they are more confident learners			sent back to the Math and English Depts for further review and to be added to the outcomes for specific DVST courses
3. 60% of students enrolled in a DVST class after midterms indicate on a student survey that they were properly placed in the DVST class	DVST Cohort	Annually	These results will be sent back to the Math and English Depts for further review and to be added to the outcomes for specific DVST courses
4. 70% of DVST faculty indicate in a focus group that their students were properly placed in a DVST course	DVST Faculty Focus Groups	Annually	These results will be sent back to the Math and English Depts for further review and to be added to the outcomes for specific DVST courses
. 50% of students who successfully complete a DVST course obtain a certificate or a degree	Colleague data	Annually	These results will be sent back to the Math and English Depts for further review and to be added to the outcomes for specific DVST courses
6. Refer to specific course-level outcomes for specific student learning outcomes	DVST Faculty	Annually	These results will be sent back to the Math and English Depts for further review and to be added to the outcomes for specific DVST courses

## COURSE LEVEL OUTCOMES ASSESSMENT

► Step 1 Identify and list the student learning GOALS for the class - what do you hope for your students?

Example: Science Course

Goal 1: This course will examine xyz principles

Goal 2: This course will use a variety of data sources to analyze xyz principles

Goal 3: Students will be required to solve complex problems

Goal 4: Lab exercises will provide the student with hands-on learning of xyz principles

Goal 5: Graduates of this program will be able to transfer to a 4-year program

► Step 2 Convert GOALS into OUTCOME STATEMENTS

Example: Science Course

Students will:

Outcome 1: Demonstrate understanding of xyz principle

Outcome 2: Be able to analyze data and solve problems

Outcome 3: Use lab equipment appropriately

Outcome 4: Successfully transfer to a 4-year institution

► Step 3 Make OUTCOME STATEMENTS measurable

Outcome 1: Demonstrate understanding of xyz principles	80% of the students in SCIE 1000 taking the comprehensive final will answer questions 5, 10, 15, 20 correctly
Outcome 2: Be able to analyze data and solve problems	70% of students in SCIE 1500 will improve by 50% on the post-test
Outcome 3: Use lab equipment appropriately	90% of students will perform procedures 1 thru 5 on the lab practical exam correctly
Outcome 4: Successfully transfer to a 4-year institution	The GPA's of 80% of students exiting this program with x-number of credits in the program will be similar to the GPA's of non-transferring institutions at 4-year institutions

► Step 4 Collect the data and analyze it

Example:

1. Every year the data is collected from SCIE 1000 and SCIE 1500. The Director of Institutional Research provides data from 4-year institutions.

2. The data shows that Outcomes 1, 3 and 4 were successfully reached.

3. The data for Outcome 2 shows that only 68% of the students answered the questions correctly.

4. The GPA's of 95% of students exiting this program with x-number of credits are better than those of non-transferring students at *University X* and *University Z* institutions.

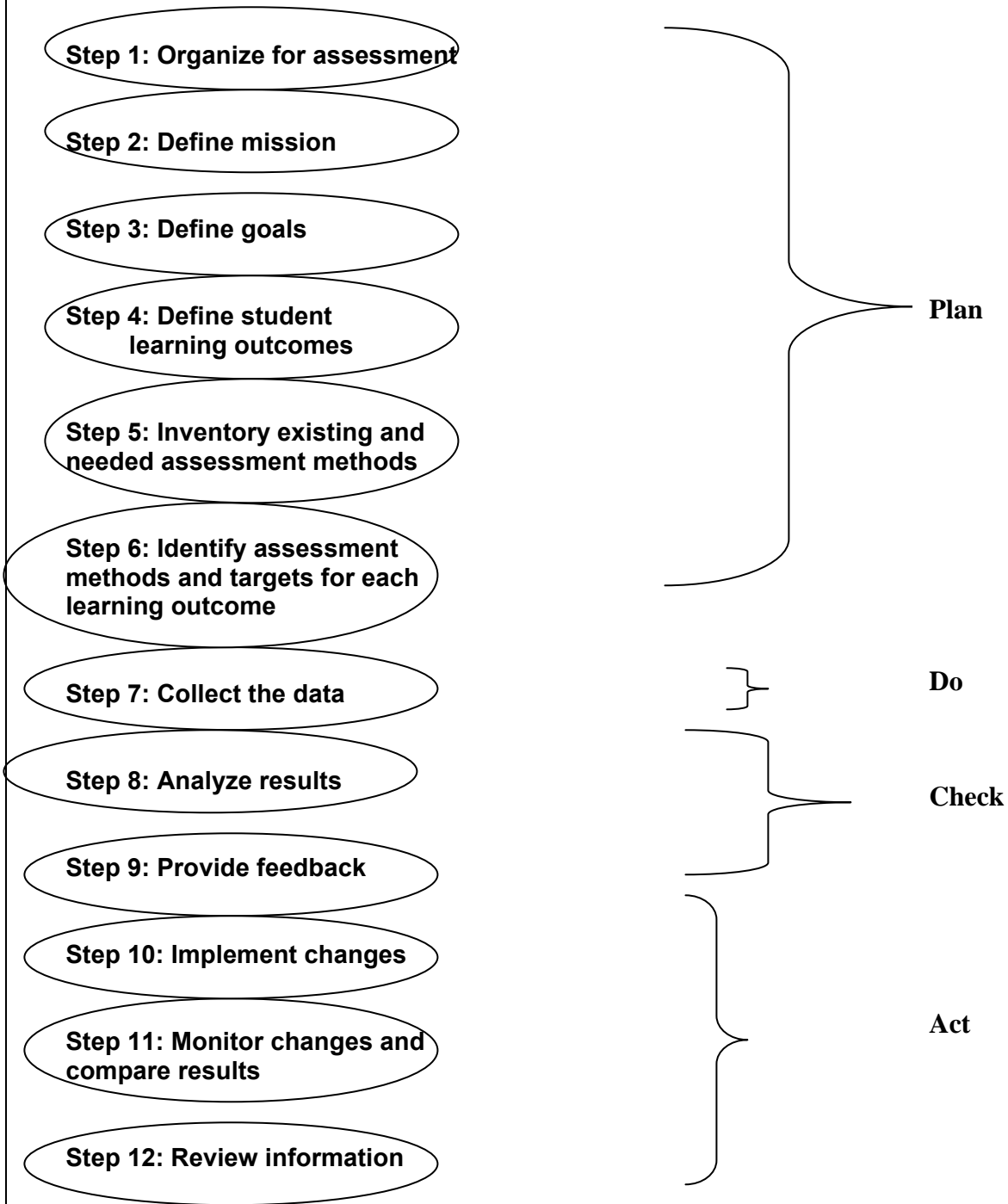
► Step 5 Use the information for curriculum and teaching development

Example:

1. The data shows that Outcomes 1, 3, and 4 were successfully reached. We will apply these same outcomes for 2 more years in order to obtain a larger sample before making changes.

2. The data for Outcome 2 shows that only 68% of the students answered the questions correctly. The curriculum will be modified to include more homework.

# FLOWCHART DESCRIBING ASSESSMENT PROCESS



# 1. ORGANIZE FOR ASSESSMENT

Before assessment can begin, the key players, committees and structures must be identified. One or more persons may lead the assessment process, but it is crucial for all faculty, staff, and administrators to assume the responsibility for designing, implementing and carrying out the assessment process including reviewing the results and implementing improvements.

In addition, it is important to define the scope of the assessment plan. In particular, you need to determine what the assessment will include and what it will not include. Will you assess resources (e.g., facilities, faculty, equipment)? Will you assess processes (e.g., pedagogy, advising, feedback processes)? Will you assess results or outcomes? Who and what will give you the feedback?

## 2. DEFINING MISSION (PURPOSE)

### ► Defining the mission statement

Stating the mission or purpose of the program/course/activity/etc. is a required element of assessment plans. The mission is a broad statement of what the program is, what it does, and for whom it does it. It should provide a clear description of the purpose and the learning environment. For a given program, the mission statement should, in specific terms, reflect how the program contributes to the education and careers of students graduating from the program. Mission statements for academic programs should reflect how the teaching and research efforts of the department are used to enhance student learning. The mission should be aligned with the Division and Institutional missions. In addition, the mission should be distinctive for your program.

This section details the various elements and attributes of a well-defined mission statement. It is important that the mission statement support and endorse CC's institutional mission. Refer to the Casper College Catalogue for mission [http://www.caspercollege.edu/pdf/common/catalog\\_06.pdf](http://www.caspercollege.edu/pdf/common/catalog_06.pdf)

► Briefly, state the purpose of the program/course/activity/etc. State the primary purpose of your program - the primary reason(s) why you perform your major activities or operations. For example, this might include, educating students to prepare them for particular jobs and/or to prepare them for transfer. Explain why you do what you do.

► Indicate the primary functions or activities of the program. Highlight the most important functions, operations, outcomes, and/or offerings of your program.

► Indicate who the stakeholders are. Include the primary groups of individuals to whom you are providing your program and those who will benefit from the program and its graduates (e.g., students, faculty, staff, parents, employers, etc.).

► Ensure that the mission statement clearly supports the institution's mission. Make sure that your mission is aligned with the mission of the College

► The mission should be distinctive. Does your statement distinguish you from other programs? If the name was removed, it should not be applicable to another program or unit.

### ► Format of a mission statement

The following is a general format that can be used when developing a mission statement:

"The mission of (name of your program or unit) is to (your primary purpose) by providing (your primary functions or activities) to (your stakeholders)." (Additional clarifying statements)

Note that the order in which the statements are made may vary from this format, but the content should be easily identified.

## 3. DEFINING GOALS

Definition:

Goals are broad statements that describe the long-term program targets or directions of development. They state in broad terms what the program wants to accomplish (in terms of student outcomes) or to become over the next several years.

Goals provide the basis for decisions about the nature, scope, and relative priorities of various activities in a program. They are used in planning and should help move the program to attain its vision.

In order for program assessment to be successful, the department must reach a consensus on the goals of the program and have an understanding of what the program is trying to accomplish, as well as how the goals are addressed in the curriculum. The goals of a program or unit must be consistent with the goals of the institution. It is necessary to ensure that agreement is reached on the mission statement before developing program goals.

### Getting started

The general process for writing goals should start with the vision statement for the program (e.g., become the best in the nation). Think about what that program would look like and how it should operate (refer to your mission) to reach that vision and write down these characteristics. This may require improving student outcomes, maximizing employment rates, and minimizing time to degree. Generate a list of potential “goals” and then prioritize them. Write these more formally as goal statements.

### Program Goals

A program goal is an intended outcome that has been stated in general enough terms to encompass a *domain* of student performance (e.g., “Graduates of the program will demonstrate good problem-solving skills”). A program goal must be further defined by a set of *specific* (observable and measurable) learning outcomes to clarify instructional intent.

#### Functions of program goals:

- ▶ They make clear the variety of types of learning expected from the instruction (i.e., knowledge, comprehension, performance skills, etc.).
- ▶ They provide a focus for instruction that avoids concentrating on isolated and unrelated learning tasks.
- ▶ They are general enough to permit flexibility in choosing methods and materials.
- ▶ They provide a framework for planning and preparing assessments and for interpreting assessment results.

#### Program goals generally are built upon the three basic categories of learning outcomes:

##### 1. Cognitive outcomes or what students know.

- ▶ *Knowledge* outcomes are the lowest level of cognitive outcomes and are concerned with the recall or recognition of learned material
- ▶ *Comprehension* is concerned with grasping the meaning of material as shown by interpretation, translation, prediction, and similar responses
- ▶ *Application* is the ability to consciously use the material in new situations

##### 2. Affective/attitudinal/value-based outcomes or what students care about

Affective outcomes are concerned with feelings and emotions that are described by individual’s disposition, willingness, preferences, enjoyments, and similar terms:

- ▶ attitudes
- ▶ interests
- ▶ appreciations
- ▶ adjustments

##### 3. Skill-based/behavioral/performance outcomes or what students can do. For example:

- ▶ *Skilled performance*: speaking, reading, singing, etc.
- ▶ *Higher level skills*: lab skills, communications skills, specialized performance skills (e.g., in business, education, art)
- ▶ *Critical thinking skills*: analysis and evaluation (e.g., identifying and analyzing a problem; evaluating possible solutions, etc.)
- ▶ *Creative thinking skills*: production of something new (e.g., producing a plan for solving a problem).

#### Good Practices in developing program goals:

##### 1. Have open discussions with department faculty on one of the following topics:

- ▶ Describe the ideal student in your program at various phases throughout your program. Ask:
  - What does this student know?
  - What can this student do?
  - What does this student care about?
- List and briefly describe the program experiences that contribute most to the development of the ideal student.
- ▶ List the achievements you implicitly expect of graduates.

► Describe your alumni in terms of such achievements as career accomplishments, lifestyles, citizenship activities, etc.

2. *Collect and review materials.* Try sorting materials by the type of learning each one is designed to promote: recognition/recall, comprehension, application, higher order thinking skills, affective learning, skilled performance, etc.

- Syllabi and course outlines
- Course assignments and tests
- Textbooks (esp. the tables of content and summaries)
- Handbooks, CAS Standards, Program Manuals

3. *Collect and review documents that describe your department/division and its programs.*

- Brochure and catalogues descriptions
- Accreditation reports
- Curriculum committee reports

4. *Review and react to goals and outcomes from another unit that is similar but external.*

Try grouping the statements into broad categories of student outcomes (e.g., knowledge, attitudes, behavior).

5. Use the 25 percent problem to *refine or reduce a set of program goals*. Imagine that you want to reduce program or course material by 25 percent. What goals would you keep and which would you discard?

6. *Use a Delphi technique.* Choose an impartial facilitator to mediate a panel discussion about possible program goals. In brainstorming session, ask each panel member to build a list of criteria that she/he thinks is important for program goals. For each criterion, each member anonymously ranks it as: 1-very important; 2-somewhat important; or 3-not important. Place the criteria in rank order and show the anonymous results to the panel. Discuss possible reasons for items with high standard deviations.

7. *Use a theoretical frame of reference as a guide.* It is helpful to refer to some frame of reference that clarifies the various types of learning outcomes. This might provide greater assurance that important goals are not overlooked and provide a guide for stating and organizing the goals.

- The Worksheet below might be helpful for identifying educational goals of your department/program.

### **Program Goals Definition Worksheet**

Each member in the department should complete a copy of this worksheet. Arrange a time for all of you to sit down together to compare notes and discuss results. The final product of this exercise should be a list of three to five broad goals that describe what department faculty, staff, and administrators believe should be characteristic of graduates.

*1. List any department goals that you know. This information can most likely be found in the course catalog, program brochure, or department mission statement.*

*2. Describe your ideal student in terms of strengths, skills, knowledge and values, and identify which of these characteristics are the result of the program experience.*

*3. Keeping this ideal student in mind, ask what the student*

*a. knows*

*b. can do*

*c. cares about*

*4. What program experiences can you identify as making the most contribution to producing and supporting the ideal student?*

*5. What should every graduate of your program know?*

*6. What are the career achievements of your alumni of which you are most proud?*

## 4. DEFINE STUDENT LEARNING OUTCOMES

### Specific Learning Outcomes

Views about academic quality and effectiveness have shifted over the past three decades from an almost exclusive pre-occupation with inputs (student and faculty credentials and resources) and processes (offerings, requirements, teaching loads, class size, student rating of instruction, time to degree, etc.) to a more mission specific focus on teaching and learning *outcomes*.

What exactly will our students know? What exactly will they understand? What exactly will they be able to do with their knowledge at the end of the program? Program faculty members should answer these questions in the framework of the program goals with sentences describing competencies that program graduates should possess or, in other words, the kinds of things that students know or are able to do after instruction that they did not know or could not do before.

*Specific Learning Outcome* is an *intended* effect of the college experience that has been stated in terms of *specific, observable, and measurable* student performance (e.g., “Students will be able to identify details that are explicitly stated in a passage”). Specific learning outcomes transform the general program goals into specific student performances and behaviors that demonstrate student learning and skill development along these goals. In other words, specific learning outcomes describe the types of performance that learners will be able to exhibit when the program has achieved its goals. Specific learning outcomes provide an operational definition of what we mean when we identify program goals. Unless the general goals are further operationalized in this way, they will not provide an adequate framework for teaching, learning, and assessment.

For example,

- 1.0 Program graduates will be able to demonstrate solid problem-solving skills. (*Program goal*)
- 1.1. Students will be able to analyze a situation to identify a problem. (*Outcome 1*)
- 1.2. Students will use multiple resources to gain additional information regarding the problem. (*Outcome 2*)
- 1.3. Students will develop a procedure to solve the problem using a sufficient knowledge base. (*Outcome 3*)
- 1.4. Students will propose and critique a viable solution to the problem. (*Outcome 4*)

#### Example:

**Poor.** Students completing the undergraduate program in Hypothetical Engineering will have knowledge of engineering principles.

This is a weak statement because it does not specify which engineering principles a graduate from the program should know. Also, it does not define what is meant by “have knowledge”. Are they supposed to be able to simply define the principles, or be able to apply the principles, etc?

**Better.** Graduates will be competent in the principles of engineering design, formulating requirements and constraints, following an open-ended decision process involving tradeoffs, and completing a design addressing a hypothetical engineering need.

This statement is better because it lists the specific areas in hypothetical engineering that a student must be competent in. However, it is still vague, as the level of competency is not stated. Are they expected to understand these concepts and how will they apply them?

**Best.** Graduates will be able to apply and demonstrate the principles of engineering design, formulating requirements and constraints, following an open-ended decision process involving tradeoffs, and completing a design addressing a hypothetical engineering need.

This is a much better learning outcome statement for two reasons. First, the specific requirements are listed and second, the level of competency is also stated. A student must be able to apply and to demonstrate the listed engineering principles.

**Benefits of formulating intended learning** outcomes are fourfold. Outcomes statements

- ▶ form the operational basis of assessment at the course, program, and institutional levels,
- ▶ provide direction for all institutional activity
- ▶ inform students about the intentions of the faculty, and
- ▶ inform external stakeholders about the educational experience in a given program or department

## Components of Statements Specific Learning Outcomes:

### Essential Components:

- ▶ **Behavior:** specify actions or behaviors that follow instruction and could serve as evidence that the goal has been achieved  
e.g., communicate results
- ▶ **Object:** identify the focus of learning – content, concept(s), skill, or attitude  
e.g., public opinion polls

### Optional Components:

- ▶ **Target groups:** specify subgroups when goal applies differentially  
e.g., graduating journalism majors
- ▶ **Conditions:** give information about situations in which the student will be required to demonstrate the behavior – how, when, or where  
e.g., after analyzing and interpreting information
- ▶ **Performance criteria:** state a minimum level of performance  
e.g., in written, oral, and graphic forms
- ▶ **Performance stability:** give information about how often the student behavior must be observed to be a true indicator that the behavior is a stable part of the student's achievement repertoire e.g., at least three different groups.

### Example:

"After analyzing and interpreting information from public opinion polls, the graduating journalism major will be able to communicate the results to at least three different groups in written, oral, and graphic forms."

### Learning outcomes:

▶ *are student-focused rather than instructor-focused.* Intended outcomes are formulated to focus on student learning, i.e. they describe what students should know, understand, or be able to do with their knowledge at the end of a program.

Poor: "The program will include instruction in multimedia techniques"

Good: "Graduates of the program will be able to use multimedia to prepare presentations"

▶ *focus on the learning resulting from an activity rather than on the activity itself.*

Poor: "Students will study at least one non-literary genre of art"

Good: "Students will arrive at an analytical and reasoned appreciation of a specific art form", "Students will be able to communicate the appreciation to others either in written or verbal form"

▶ *reflect state mandates and institutional expectations about learning.* Typically these expectations address the transferable or orthogonal competencies (e.g., writing, critical thinking, leadership skills, quantitative reasoning.)

Departments and programs should reinforce these broad goals in the statements of expected learning outcomes and, subsequently, in the curricula.

▶ *are reflected in program curriculum and translated into course specific objectives.* A good practice is to ask instructors to state explicitly in each course syllabus the program level goals and outcomes addressed in that course.

▶ *focus on important, non-trivial aspects of learning that are credible to the public.* One pitfall to avoid in formulating intended outcomes is focusing on easy-to-measure, but relatively unimportant outcomes like, "Students will recall the stages of mitosis." This can happen when learning outcomes are developed by carving up the content of the discipline into smaller pieces. The focus of learning outcomes is not on less content but rather is on what students can do with the content they have learned. For example, "Students will be able to reason effectively by using simplified economic models such as supply and demand, marginal analysis, benefit-cost analysis, and comparative advantage"

▶ *are general enough to capture important learning but clear and specific enough to be measurable.* For example, the outcome, "Students will be able to solve problems," gives little guidance for assessment. In contrast, the outcome "Students will work effectively with others on complex, issue-laden problems requiring holistic problem solving approaches," can be assessed by developing assessments that require teams of students to develop solutions to complex, issue-laden problems, as defined by the discipline. They can, then, be judged on the effectiveness of their team skills, the quality of their solution, and their ability to use holistic problem solving approaches.

▶ *are effectively worded*

- use action verbs that describe definite, observable actions. Those assessing should select those verbs that

(i) most clearly convey instructional intent and

(ii) most precisely specify the student performance the program is willing to accept as evidence that the general instructional goal has been achieved

- include a description under which the action takes place – "when given x, the student will be able to..."

- indicate an appropriate level of competency that is assessable through one or more indicators.

## 5. Inventory existing and needed assessment methods

Bloom's Taxonomy of Educational Objectives (1956) is a well-known, detailed and structured framework that can be used for identifying and writing learning outcomes. The Taxonomy identifies three domains of educational outcomes: cognitive, skills and affective. A team of educational psychologists, headed by Benjamin Bloom, formulated a classification of educational activities in 1956, which is widely known as Bloom's Taxonomy. They went on to develop a classification system for the cognitive and affective domains but did not complete the system for the skills domain.

### Cognitive:

This domain involves knowledge recall and intellectual skills (such as comprehending, organizing ideas and analyzing data). The classification system divides the cognitive skills into six levels ranging from simple outcomes (behaviors) to the most complex outcomes (behaviors). Bloom's six cognitive domain levels ranging from basic to most complex are: knowledge, comprehension, application, analysis, synthesis, and evaluation. A brief description of each is provided below.

Cognitive	Description
<b>1. Knowledge</b> (represents lowest level of learning)	Ability to observe and remember previously learned information; knowledge of specific facts, terms, concepts, principles, ideas, events, places, etc.; mastery of subject material.
<b>2. Comprehension</b> (represents lowest level of understanding)	Ability to understand information and grasp material; translating knowledge from one form to another; interpreting, comparing and contrasting material; predicting consequences and future trends.
<b>3. Application</b> (represents higher level of understanding)	Ability to use information, learned material, methods, concepts, theories, principles, laws and theories in new situations; problem solving using required knowledge or skills.
<b>4. Analysis</b> (represents a higher intellectual level)	Ability to break down material and recognition of organization structure; identification of components and relationships between components; recognition of patterns and hidden meanings.
<b>5. Synthesis</b> (represents a higher intellectual level)	Ability to combine parts or apply prior skills and knowledge to produce a new whole; integrate ideas into a solution; generalize from given facts; propose a plan of action; formulate new classification methods.
<b>6. Evaluation</b> (represents highest cognitive level)	Ability to judge and assess the value of theories and presentations, based on their value, logic or adequacy, for a given purpose; compare and make choices based on reasoned argument; verify the value of evidence; recognize subjectivity.

### Affective:

Affective learning is concerned with attitudes, values, interests, appreciation and feelings toward people, ideas, places and objects. Values refer to views and ideas that an individual believes in. Affective outcomes range from receiving (or willingness to participate in an activity) to adopting a value system that directs behavior.

Affective	Description
<b>1. Receiving</b>	Willingness to participate in an activity or to attend to a stimulus; getting and holding the attention of students.

<b>2. Responding</b>	Actively participates; demonstrates interest in an object, activity or phenomena; seeks or pursues this object, activity or phenomena
<b>3. Valuing</b>	Value or worth attached to an object, activity or phenomena; varies from simple acceptance to commitment.
<b>4. Organization</b>	Compare and contrast and resolve conflict to build a consistent value system; emphasis on comparing and synthesizing values.
<b>5. Characterization by Value</b>	Adopt a value system for a length of time that contributes to a particular "lifestyle" (i.e. directs behavior).

**Skills:**

The skills domain is used to classify movement patterns and behaviors.

<b>Skill</b>	<b>Description</b>
<b>1. Perception</b>	Uses sense organs to obtain cues to guide action; ranges from awareness of stimulus to translating cue perception into action.
<b>2. Set</b>	Readiness to take action; includes mental, physical and emotional set (or readiness to act).
<b>3.Guided Response</b>	Knowledge of the steps required to perform a task; includes imitation and trial-and-error.
<b>4. Mechanism</b>	Perform tasks in a habitual manner, with a degree of confidence and proficiency.
<b>5. Complex Overt Response</b>	Skillful performance of motor acts involving complex patterns of movement.
<b>6. Adaptation</b>	Skillful performance of motor acts involving complex patterns of movement; modifies movement patterns to account for problematic or new situations.
<b>7. Origination</b>	Creating new movement patterns to account for problematic or new situations; creates new tasks that incorporate learned ones.

**Key words**

The three domains of educational objectives were described in an earlier section. In this section, a collection of verbs is provided to help you in writing the learning outcome statements.

**Examples of action words** that are used frequently in stating learning outcome statements are provided in the table below:

**Cognitive Key Words:**

<b>Knowledge</b>	Arrange, define, describe, duplicate, enumerate, identify, indicate, know, label, list, match, memorize, name, reads, recall, recognize, record, relate, repeat, reproduce, select, state, view, underline
------------------	--

<b>Comprehension</b>	Classify, cite, convert, defend, describe, discuss, distinguish, estimate, explain, express, generalize, give examples, identify, indicate, infer, locate, paraphrase, predict, recognize, report, restate, review, rewrite, select, suggest, summarize, tell, trace, translate, understand
<b>Application</b>	Act, administer, apply, articulate, assess, change, chart, choose, collect, compute, construct, contribute, control, demonstrate, determine, develop, discover, dramatize, employ, establish, extend, give examples, illustrate, implement, include, inform, instruct, interpret, investigate, manipulate, operate, organize, participate, practice, predict, prepare, preserve, produce, project, provide, relate, report, schedule, shop, show, sketch, solve, teach, transfer, translate, use, utilize, write
<b>Analysis</b>	Analyze, appraise, breaks down, calculate, categorize, compare, contrast, correlate, criticize, debate, determine, diagram, differentiate, discriminate, distinguish, examine, experiment, focus, identify, illustrate, infer, inspect, inventory, limit, outline, point out, prioritize, question, recognize, relate, select, separate, subdivide, solve, test
<b>Synthesis</b>	Adapt, anticipate, arrange, assemble, categorize, collaborate, collect, combine, communicate, compile, compose, construct, create, design, devise, develop, explain, express, facilitate, formulate, generate, incorporate, individualize, initiate, integrate, intervene, manage, model, modify, negotiate, organize, perform, plan, prepare, produce, propose, rearrange, reconstruct, reinforce, relate, reorganize, revise, set up, structure, substitute, validate, write
<b>Evaluation</b>	Appraise, argue, assess, attach, choose, compare, conclude, contrast, criticize, critique, decide, defend, enumerate, estimate, evaluate, grade, interpret, judge, justify, measure, predict, rate, reframe, revise, score, select, support, value

**Affective Key Words:**

<b>Receiving</b>	Ask, choose, describe, follow, give, hold, identify, locate, name, point to, reply, select, sit erect, use
<b>Responding</b>	Answer, assist, compile, conform, discuss, greet, help, label, perform, practice, present, read, recite, report, select, tell, write
<b>Valuing</b>	Complete, describe, differentiate, explain, follow, form, initiate, invite, join, justify, propose, read report, select, share, study, work
<b>Organization</b>	Adhere, alter, arrange, combine, compare complete, defend, explain, generalize, identify, integrate, modify, order, organize, prepare, relate, synthesize
<b>Characterization by Value</b>	Act discriminate, display, influence, listen, modify, perform, practice, propose, qualify, question, revise, serve, solve, use, verify

**Skills Key Words:**

<b>Perception</b>	Choose, describe, detect, differentiate, distinguish, identify, isolate, relate, select separate
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<b>Set</b>	Begin, display, explain, move, proceed, react, respond, show, start, volunteer
<b>Guided Response</b>	Assemble, build, calibrate, construct, dismantle, display, dissect, fasten, fix, grind, heat, manipulate, measure, mend, mix, organize, sketch, work
<b>Mechanism</b>	Assemble, build, calibrate, construct, dismantle, display, dissect, fasten, fix, grind, heat, manipulate, measure, mend, mix, organize, sketch, work
<b>Complex Overt Response</b>	Assemble, build, calibrate, construct, dismantle, display, dissect, fasten, fix, grind, heat, manipulate, measure, mend, mix, organize, sketch, work
<b>Adaptation</b>	Adapt, alter, change, rearrange, reorganize, revise, vary
<b>Origination</b>	Arrange, combine, compose, construct, design, originate

### Specific Learning Outcomes Worksheet

This worksheet may help you and others in your department develop specific learning outcomes from the program goals you have identified. Have all faculty members complete the following table. Meet as a group to discuss your response and try to reach consensus on desired goals and outcomes.

<b>Program general educational goals</b>	<b>Specific learning outcome(s)</b>
1.	a) b) c)
2.	a) b) c)
3.	a) b) c)
4.	a) b) c)

### Validating Specific Learning Outcomes: Curriculum mapping

If students are expected to attain specified intended outcomes, they should be *provided with the opportunities to learn what they need to learn*. The purpose of curriculum mapping is to look at the program/department curriculum in light of intended outcomes to ensure that students receive appropriate instruction and assignments in the desired order and with enough repetition so that learning outcomes are achieved. Curriculum mapping enables a department or program to identify gaps in the curriculum as well as to provide an overview of what each course is attempting to accomplish. Curriculum mapping can be done in two general formats – curriculum audit grid and course objectives/program goal reference matrix.

**Curriculum Audit Grid. Program Outcomes/Program Curriculum**

Course

Outcomes	1000	1010	1020	1030	1040
1. Recognize and articulate approaches to psychology	I	E		R	R
2. Independently design valid correlational research		I		U	R
3. etc.					

Introduced=I, Emphasized=E, Utilized=U, Reinforced=R

**Course Objectives/Program Goals Reference Matrix**

Course: \_\_\_\_\_ Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

Course Learning Objectives	Program Goals (Enter level number defined below)						
	A=	B=	C=	D=	E=	F=	G=
1. What will be measured to demonstrate that this learning objective has been achieved?							
2 What will be measured to demonstrate that this learning objective has been achieved?							
3 What will be measured to demonstrate that this learning objective has been achieved?							

A. – H. – departmental or program goals

Level:

1. Major emphasis of the course
2. Discussed in the course and covered in homework or quiz
3. Mentioned in the course but not covered in homework or quiz
4. Not mentioned in the course

## 6. IDENTIFY ASSESSMENT METHODS AND TARGETS FOR EACH LEARNING OUTCOME

### Basic Rules:

- ▶ There should be at least one method for assessing each educational outcome, and no assessment that does not address at least one outcome should be included.
- ▶ Multiple methods to assess the same outcome should be used whenever feasible.
- ▶ The ability of assessment to improve student learning depends on the relevance and usefulness of the information that is generated. To be useful, assessment methods must gather evidence that is closely related to the selected intended learning outcomes.
- ▶ When choosing assessment methods make sure the selected methods:
  - answer questions that are important to you
  - follow identified “good practices” in undergraduate education
  - are manageable given available resources and skills
  - result in useful feedback that highlights accomplishments and identifies areas requiring attention.

### Taxonomy of Assessment Methods

Assessment methods can be categorized according to three taxonomies:

- ▶ selected-response/constructed-response
- ▶ direct/indirect, and
- ▶ qualitative/quantitative methods.
- ▶ *Selected-response* assessments, also called the recognition assessment, present alternative responses, from which the student chooses the correct or preferred answer. Typical selected response types are multiple-choice, true-false, and matching tests.

▶ *Constructed-response* assessments, also called the production assessment, require students to produce an answer or furnish an “authentic” response to a given stimulus or test question. Typical constructed-response formats are sentence-completion tests, essay questions, and performances.

▶ *Direct* methods require students to display their knowledge and skills as they respond to the instrument itself. Some examples of direct methods are:

- objective tests
- essays
- presentations
- classroom assignments

▶ *Indirect* methods ask students to reflect on their learning rather than demonstrate it. Some examples of indirect methods are:

- surveys
- interviews
- focus groups

▶ *Quantitative* studies assess teaching and learning by collecting and analyzing numeric data using statistical techniques. Researchers typically work with a small number of predetermined response categories. Emphasis is usually on analyzing a large number of cases using instruments that have been evaluated for their validity and reliability. Some examples of quantitative measures and techniques are:

- GPA
- grades
- exam scores
- tests
- structured interviews
- forced-choice surveys

▶ *Qualitative* studies rely on descriptions rather than numbers and usually deal with unknown causes, variables, and an absence of explanatory theories. Qualitative approaches rely on discovery, subjectivity, and interpretation. Qualitative studies are useful:

- for discovery when we do not know enough to formulate a hypothesis, and
- for communicating results of quantitative studies. Qualitative studies are helpful ways to illustrate and explain outcome results when numbers simply do not portray the meaning of the collegiate experience.

However, qualitative assessment has some difficulties: it is hard to identify standards; qualitative assessment depends upon objectivity, which may be hard to find, and it suffers from lack of consistency or reliability in judgment between evaluators and over time.

Some examples of qualitative measures are:

- exit interviews
- writing samples
- open-ended questions on surveys

## Step 7: Collect the data

### Assessment Strategies

Data	Assessment Tool	Who or What is Analyzed?	What can be Assessed?
Self-reports	Classroom assessment Focus groups Interviews Reflective essays Surveys	Alumni Employers Enrolled students Faculty Graduating students Entering students Staff	<i>Perceptions about:</i> Campus climate Perceived learning Value-added Attitudes Values
Achievement tests	Test score analysis Content analysis Scoring rubrics	Embedded questions on exams Standardized tests Locally developed exams Oral thesis defenses	Mastery and knowledge of principles Skills Value-added
Observations	Case studies Observations	Campus events Classes Faculty offices Student services offices	Attitudes Interactions Student involvement Student learning
Student academic work	Content analysis Scoring rubric	Capstone course products Homework papers Term papers/projects Portfolios Presentations	Mastery and knowledge of principles, skills Values Processes Value-added
Campus documents	Course x program goals/outcomes matrix Course assignment x program goals/outcomes matrix Content analysis Analysis of forms	Administrative units Departments Programs Course syllabi Student transcripts	Accuracy Cohesion/consistency Efficiency Objectives Processes

The following section describes the basics for doing outcomes assessment using a variety of techniques. For each technique, procedures, strengths, and weaknesses are described. References for each technique are provided in the *Bibliography* section.

## Advantages and Disadvantages of Assessment Methods

Method	Description	Strengths	Weaknesses
Alumni Survey	Surveying department alumni can provide a wide variety of information about program satisfaction, how well students are prepared for their careers, what types of jobs or graduate degrees majors have gone on to obtain, starting salaries for graduates, and the skills that are needed to succeed in the job market or in graduate study. These surveys provide the opportunity to collect data on which areas of the program should be changed, altered, improved or expanded.	Alumni surveying is usually a relatively inexpensive way to collect program data from individuals who have a vested interest in helping you improve your program as well as offering the opportunity for improving and continuing department relationships with program graduates.	Without an easily accessible and up-to-date directory of alumni, they can be difficult to locate. It also takes time to develop an effective survey and ensure an acceptable response rate.
Culminating Assignments	Culminating assignments offer students the opportunity to put together the knowledge and skills they have acquired in the major, provide a final common experience for majors, and offer faculty a way to assess student achievement across a number of discipline-specific areas. Culminating assignments are generally designed for seniors in a major or field to complete in the last semester before graduation. Their purpose is to integrate knowledge, concepts and skills that students are expected to have acquired in the program during the course of their study. This is obviously a curricular structure as well as an assessment technique and may consist of a single culminating course (a “capstone” course) or a small group of courses designed to measure competencies of students who are completing the program. A senior assignment is a final culminating project for graduating seniors such as a performance portfolio or a thesis that has the same integrative purpose as the capstone course.	Many colleges and universities are using capstone courses to collect data on student learning in a specific major or in general education or core requirement programs.	Putting together an effective and comprehensive capstone course can be a challenge, however, particularly for those programs that mesh hands-on technical skills with less easily measurable learning outcomes. Also, there is a great deal of start-up time to developing appropriate and systematic methods for assessing these or other culminating experiences.
Content Analysis	Content analysis is a technique that looks at a group of students, such as majors in a program or department, and assesses samples of written work that are produced by this group. This assessment method uses outcomes identified as important prior to the analysis or as the analysis proceeds. For example, you might want to determine how well majors in your department write. To use content analysis to assess their writing skills, you will need a representative sample of the writing. Analysis may look at what students actually write or at the underlying meaning of their writing. Results are generally presented in written form giving averages and examples of specific categories of outcomes (e.g., spelling errors). Primary trait analysis, which identifies important characteristics of specific assignments and assigns levels of competency to each trait, can be particularly effective in identifying student learning.	Content analysis allows you to assess learning outcomes over a period of time and can be based on products that were not created for program assessment purposes. Because writing samples can be re-examined, content analysis also makes it easier to repeat portions of the study and provides an unobtrusive way to assess student learning.	Accuracy of the assessment is limited to the skill of the person(s) doing the analysis. Data is also limited by the set of written work and may not be relevant to technical skills valued by a particular field or major that involve hands-on performance. Pre-testing coding schemes, using more than one analyst per document, and concrete materials and coding schemes can improve the reliability of this technique.
Course - Embedded Assessment	Course-embedded assessment refers to methods of assessing student learning within the classroom environment, using course goals, objectives and content to gauge the extent of the learning that is taking place.	This method of assessment is often effective and easy to use because it builds on the curricular structure of the course and often does not	Course-embedded assessment does, however, take some preparation and analysis time and, while well documented for improving individual

	This technique generates information about what and how students are learning within the program and classroom environment, using existing information that instructors routinely collect (test performance, short answer performance, quizzes, essays, etc.) or through assessment instruments introduced into a course specifically for the purpose of measuring student learning.	require additional time for data collection since the data comes from existing assignments and course requirements.	courses, there is less documentation on its value for program assessment.
Curriculum Analysis	Curriculum analysis involves a systematic review of course syllabi, textbooks, exams, and other materials to help you clarify learning objectives, explore differences and similarities between course sections, and/or assess the effectiveness of instructional materials. It offers a way to document which courses will cover which objectives and helps in sequencing courses within a program. Also see Matrices.	Using curriculum analysis as an assessment tool can be a valuable way of tracking what is being taught where. It can provide assurance that specific learning goals and objectives are being covered in the program and can pinpoint areas where additional coverage is needed	This method, however, can be time consuming, particularly in large departments with many courses and different instructors, and there may be little consistency between how learning objectives are addressed in one course and how they are taught in another.
Delphi Technique	The Delphi technique is used to achieve consensus among differing points of view. In its original form, a team of experts, who never actually meet, are asked to comment on a particular issue or problem. Each member's response is reviewed and a consensus determined. Any member whose response falls outside of the consensus is asked to either defend or rethink the response. The anonymity provided by this technique offers more junior members of the team an equal chance to get their ideas out, as well as permits a challenge to the ideas of senior members that might never take place in an open forum. More recently, the Delphi technique has been modified so that teams of individuals are brought together to discuss an issue or problem face-to-face and reaching a consensus at the meeting. For instance, a team of faculty members might meet to review possible goals and objectives for their department in an effort to develop a set of goals and objectives on which they can agree.	The Delphi technique can be useful in bringing together diverse opinions in a discussion forum.	This technique fails, however, when the facilitator lacks objectivity or when the participants feel unsafe or insecure in voicing their real opinions. For instance, faculty member discussing intended goals and objectives might not be comfortable in disagreeing with the department head. For this technique to succeed, care must be taken to appoint an impartial facilitator and to convince participants that differing opinions are welcome.
Employer Survey	Employer surveys help the department determine if their graduates have the necessary job skills and if there are other skills that employers particularly value that graduates are not acquiring in the program. This type of assessment method can provide information about the curriculum, programs and student outcomes that other methods cannot: on-the-job, field-specific information about the application and value of the skills that the program offers.	Employer surveys provide external data that cannot be replicated on campus and can help faculty and students identify the relevance of educational programs.	As in any survey, ambiguous, poorly worded questions will generate problematic data. Additionally, though data collected this way may provide valuable information on current opinion, responses may not provide enough detail to make decisions about specific changes in the curriculum or program. Also, it is sometimes difficult to determine who should be surveyed, and obtaining an acceptable response rate can be cost and time intensive.
Focus Groups	Focus groups are structured discussions among homogeneous groups of 6-10 individuals who respond to specific open ended questions designed to collect data	Focus groups can provide a wide variety of data about participants' experiences, attitudes, views and	Data collected in this way, however, is not useful for quantitative results, and qualitative data can be time

	about the beliefs, attitudes and experiences of those in the group. This is a form of group interview where a facilitator raises the topics for discussion and collects data on the results. Emphasis is on insights and ideas.	suggestions, and results can be easily understood and used. These groups allow a small number of individuals to discuss a specific topic in detail, in a non-threatening environment.	consuming and difficult to analyze because of the large amount of non-standardized information. Ultimately, the success of this method depends on a skilled, unbiased moderator and appropriate groups of participants.
Institutional Data	A variety of departmental and student data are routinely collected at the university level. These data can enhance and elaborate on data you collect in the department. Institutional data can tell you whether the program is growing, what the grade point average is for majors in the program, and what the retention rate is for your students.	Institutional data are generally easily accessible and readily available. You can access this data through the Registrar. Student and departmental data are collected on a systematic and cyclical schedule that can offer you both current and longitudinal information.	These data sets are generally large and may be difficult to sort through, particularly for those individuals who are not used to working through large databases. The data may be less useful to specific departments or programs because the information collected is very often general (age, gender, race, etc.) and may not directly relate to program goals and objectives.
Matrices	At its most basic, a matrix is a grid of rows and columns used to organize information. For assessment purposes, a matrix can be used to summarize the relationship between program objectives and course syllabus objectives, course assignments, or courses in a program or department. Matrices can be used for curriculum review, to select assessment criteria or for test planning. A matrix can also be used to compare program outcomes to employer expectations.	Using a matrix can give you a good overview of how course components and curriculum link to program objectives, can help you tailor assignments to program objectives, and can lead to useful discussions that in turn lead to meaningful changes in courses or curricula	However, because a matrix can offer a clear picture of how program components are interconnected and can reveal where they are not, acknowledging and responding to discrepancies may involve extensive flexibility and willingness
Observation	Observation as a method of assessment is an unobtrusive tool that can yield significant information about how and why students learn. You may choose to observe any relevant interactive event, such as classes, club meetings, or social gatherings. This tool is generally used when you are interested in how students study, are concerned about the effectiveness of study sessions or other supplementary activities, or when you are focusing on the relationship between out-of-class behavior and in-class performance. Data collected through observation can be correlated with test scores and/or course grades to help provide further insight into student learning.	Data collected through observation can yield important insight into student behavior that may be difficult to gauge through other assessment methods. This method is typically designed to describe findings within a particular context and often allows for interaction between the researcher and students that can add depth to the information collected. It is especially useful for studying subtleties of attitudes and behavior.	Observed data, however, is not precise and cannot be generalized to larger populations. Conclusions may be suggestive rather than definitive, and others may feel that this method provides less reliable data than other collection methods.
Performance Assessment	Performance assessment uses student activities to assess skills and knowledge. These activities include class assignments, auditions, recitals, projects, presentations and similar tasks. At its most effective, performance assessment is linked to the curriculum and uses real samples of student work. This type of assessment generally requires students to use critical thinking and problem-solving skills within a context relevant to their field or major. The performance is rated by faculty or qualified observers and assessment data collected. The student receives feedback on the performance and evaluation.	Performance assessment can yield valuable insight into student learning and provides students with comprehensive information on improving their skills. Communication between faculty and students is often strengthened, and the opportunity for students' self-assessment is increased.	This type of assessment is labor-intensive, is sometimes separate from the daily routine of faculty and student, and may be seen as an intrusion or an additional burden. Articulating the skills that will be examined and specifying the criteria for evaluation may be both time-consuming and difficult.

Portfolios	Portfolios are collections of student work over time that are used to demonstrate student growth and achievement in identified areas. Portfolios can offer information about student learning, assess learning in general education and the major, and evaluate targeted areas of instruction and learning. A portfolio may contain all or some of the following: research papers, process reports, tests and exams, case studies, audiotapes, videotapes, personal essays, journals, self-evaluations and computational exercises. Portfolios are often useful and sometimes required for certification, licensure, or external accreditation reviews.	Portfolios not only demonstrate learning over time, but can be valuable resources when students apply to graduate school or for jobs. Portfolios also encourage students to take greater responsibility for their work and open lines of discussion between faculty and students and among faculty involved in the evaluation process.	Portfolios are, however, costly and time consuming and require extended effort on the part of both students and faculty. Also, because portfolios contain multiple samples of student work, they are difficult to assess and to store and may, in some contexts, require too much time and effort from students and faculty alike.
Pre-test / Post-test Evaluation	This method of assessment uses locally developed and administered tests and exams at the beginning and end of a course or program in order to monitor student progression and learning across pre-defined periods of time. Results can be used to identify areas of skill deficiency and to track improvement within the assigned time frame. Tests used for assessment purposes are designed to collect data that can be used along with other institutional data to describe student achievement.	Pre-test/post-test evaluations can be an effective way to collect information on students when they enter and leave a particular program or course, and provide assessment data over a period of time. They can sample student knowledge quickly and allow comparisons between different students groups, or the same group over time.	Pre-test/post-test evaluations require additional time to develop and administer and can pose problems for data collection and storage. Care should be taken to ensure that the tests measure what they are intended to measure over time (and that they fit with program learning objectives) and that there is consistency in test items, administration and application of scoring standards
Reflective Essays	Reflective essays may be used as an assessment tool to gauge how well students understand class content and issues. They are generally short essays (5 to 10 minutes) on topics related to the course curriculum and may be given as in-class assignments or homework. Reflective essays may be voluntary or required, open-ended questions on surveys required in student portfolios or capstone composition courses.	Reflective essays as an assessment tool can offer data on student opinions and perspectives at a particular moment in a class. Essays will provide a wide array of different responses and might lead to increased discussion among faculty and students.	Poorly worded, ambiguous questions will yield little, and opinions and perceptions may vary in accuracy. Analysis of essay content also takes additional time and expertise.
Standardized and Local Test Instrument	Selecting a standardized instrument (developed outside the institution for application to a wide group of students using national/regional norms and standards) or a locally-developed assessment tool (created within the institution, program or department for internal use only) depends on specific needs and available resources. Knowing what you want to measure is key to successful selection of standardized instruments, as is administering the assessment to a representative sample in order to develop local norms and standards. Locally developed instruments can be tailored to measure specific performance expectations for a course or group of students.	Locally-developed instruments are directly linked to local curriculum and can identify student performance on a set of locally important criteria. Standardized tests are immediately available for administration and, therefore, are less expensive to develop than creating local tests from scratch. Changes in performance can be tracked and compared to norm groups and subjectivity/misinterpretation is reduced.	Putting together a local tool is time consuming as is development of a scoring key/method. There is also no comparison group and performance cannot be compared to state or national norms. Standardized measures may not link to local curricula and purchasing the tests can be expensive. Test scores may also not contain enough locally-relevant information to be useful.
Student Surveys and Exit Interviews	Surveys and interviews ask students to respond to a series of questions or statements about their academic experience. Questions can be both open-ended (respondents create	Surveys can be relatively inexpensive and easy to administer, can reach participants over a wide area,	Ambiguous, poorly written items and insufficient responses may not generate enough detail for decision making.

	answers) and close-ended (respondents answer from a list of simple and unambiguous responses). Surveys and interviews can be written or oral (face-to-face) or phone. Types of surveys include in-class questionnaires, mail questionnaires, telephone questionnaires, and interviews. Interviews include structured, in-person interviews and focus group interviews.	and are best suited for short and non-sensitive topics. They can give you a sense of what is happening at a given moment in time and can be used to track opinions. Data is reasonably easy to collect and tabulate. An interview can follow-up on evasive answers and explore topics in-depth, collecting rich data, new insights, and focused details.	Information may be distorted by the respondent, who may feel a lack of privacy and anonymity. The success of the interview depends ultimately on the skills of the interviewer.
Syllabus Analysis	Syllabus analysis (as well as systematic review of textbooks, exams and other curricular material) involves looking at the current course syllabus (written or oral assignments, readings, class discussions/projects and course expectations) to determine if the course is meeting the goals and objectives that the instructor or department has set for it.	Use syllabus analysis when you want to clarify learning objectives; explore differences and similarities between sections of a course; or assess the effectiveness of instructional materials. Syllabus analysis can provide invaluable information to enhance any assessment plan.	However, this review is time consuming and, as there may be more than one reviewer, there may not be adequate consistency in collecting and analyzing the data.
Transcript Analysis	Transcript analysis involves using data from student databases to explore course taking or grade patterns of students. This tool can give you a picture of students at a certain point in their academic careers, show you what classes students took and in what order, and identify patterns in student grades. In sum, transcript analysis gives you a more complete picture of students' actual curricular experiences. Specific information can be drawn from transcripts to help answer research questions, and course pattern sequences can be examined to see if there is coherence to the order of courses taken.	Transcript analysis is an unobtrusive method for data collection using an existing student database. This information can be linked to other variables such as sex or major, or used to measure outcomes.	It is important to keep in mind, however, that course patterns may be influenced by other variables in students' lives that don't show up on their transcripts. Also, solutions that arise from results of the analysis may not be practical or easily implemented. It is critical to have specific questions whose answers can lead to realistic change before conducting the analysis.

## Step 8: Analyze results

Review all of the information obtained from the assessment process and determine how this analysis will affect your next assessment plan. This concludes the first cycle and initiates the next step in the plan-do-check-act cycle for continuous improvement.

Before investing time and resources devising and developing new assessment instruments or methods, identify assessment-related information that you are already collecting and assessment processes that are in place. It is very helpful to match the available information and processes to the program goals and learning outcomes.

A useful tool that will help you link your current assessment efforts to program mission, goals and student learning outcomes is the assessment matrix. Note that faculty and departments may already be using various assessment methodologies to assess student learning, but do not include those methods as part of the formal assessment process.

Assessment matrices can be used to identify various configurations of how you are matching program goals with outcomes. For example, a matrix may link program objectives to specific courses; or course objectives to intended learning outcomes. Two examples of assessment matrices are presented below.

In the first matrix, each assessment tool is categorized as either direct or indirect. The instrument is categorized as a direct tool if it is used to evaluate a student's abilities, skills, and knowledge of academic services. It is termed an indirect method if it is used to gather data on how students perceived their educational experiences and what they have learned.

Outcomes	Graduating Senior Survey	Capstone Course	Portfolio	Focus Group
Satisfaction with advising	Direct			Indirect
Acquire necessary skills and knowledge		Direct	Direct	Indirect
Proficiency in written communication skills		Direct	Direct	Indirect

Another configuration that can be used in the assessment matrix is to link intended program outcomes with the curriculum. List all the intended program outcomes vertically and the courses and program requirements horizontally. Then indicate which course addresses each listed outcome. Additionally, the matrix can be used to provide more detail (e.g., the degree it was addressed in a particular course). For example, you might specify if the outcome is introduced, emphasized, used or assessed during each course.

Learning outcomes	Course 1234	Course 2345	Course 3456	Capstone Course
Apply specific theory	Introduced	Emphasized	Used	Assessed
Acquire necessary skills and knowledge		Introduced	Used	Assessed
Proficiency in written communication skills		Introduced		Emphasized

#### ► Summarizing Collected Data

The data collected from your assessment methods should be summarized clearly and concisely.

#### ► Collected data categorized based on what is being assessed

If you have assessed intended learning outcomes clearly, you can organize your results into categories that both match your outcome and allow you to identify areas for change, such as student learning, program processes, and curriculum. In each category, review and summarize the data from each assessment approach per outcome.

#### ► Student learning

Data from measures associated with student learning outcomes permit you to compare actual student performance with intended student performance. You will then be able to identify areas of strength and weakness for students. Determining weak areas allows a program to target those areas for improvement. Faculty can be certain that the knowledge, skills, or values that are intended are adequately addressed in the courses students take as they progress through the program (see matrix above).

#### Use of data from direct assessments

- **Cognitive:** What does the student know versus what the program intends the student to know?
- **Performance and skills:** What can the student do versus what the program expects the student to be able to do?
- **Affective:** What does the student care about versus what the program intends the student to care about?

#### Use of data from indirect assessments

- **Cognitive:** What does the student report that he knows (i.e. his perception of his knowledge, understanding, etc.)? Does it match what you planned students' perception to be of the discipline or a specific aspect of the discipline?
- **Performance and skills:** What does the student report that he can do (i.e., his perception of his ability or skills)? Does it match what you intended students in your program to do?
- **Affective:** How does the student respond to questions dealing with program impact on the student's values? Does it match your intended values and beliefs?

### ► **Program and department processes**

Data from measures associated with processes related to the department and the program provide information that can be used to improve how the program is functioning and what it has been done to facilitate students' progress toward graduation.

► **Use of data from direct assessors of program and department processes.** Collected data from measures for academic administrative support services, enable departments to improve areas of support (e.g., advising, computer assistance, tutoring).

► **Use of data from indirect assessors (student perception) of program and department processes.** Data collected about how students perceive support services administered by academic support departments enable areas to identify weaknesses (e.g., advising, curriculum, teaching, preparing for graduate school).

► **Curriculum** The data from curriculum assessment can be used to check the alignment of the curriculum with learning outcomes (such as curriculum mapping). Assessment mapping can be done as an extension of curriculum mapping to determine within which courses specific learning outcomes are assessed.

► **Use of data to evaluate curriculum mapping.** When using data to inform curriculum mapping, compare the results with your curriculum map to determine if student learning outcomes were addressed. If they were not addressed, determine in which courses they should be.

► **Use of data to evaluate assessment mapping.** Your data may reveal that you were not assessing outcomes in the right way or at the right time in the curriculum. Assessment mapping allows faculty to ensure that curricular student learning outcomes are being assessed well and at the optimum time(s).

## **Step 9: Provide Feedback**

All data analysis should be reviewed by a group of faculty, staff or administrators to determine what the data mean. Interpretation of data should be within the context of what you plan to know after conducting assessment(s).

## **Step 10: Implement Changes**

### **Summary of types of changes made as a result of conducting assessment**

The following categories are areas, within the academic environment, where changes may be implemented:

#### ► **Changes to Assessment Plan**

- revision of intended learning outcome statement(s)
- revision of measurement approaches
- collection of and analysis of additional data and information
- changes of data collection methods

#### ► **Changes to Curriculum**

- changes in pedagogical practices
- revision or enforcement of prerequisites
- revision of course sequence
- revision of course content
- addition of course(s)
- deletion of course(s)

#### ► **Changes to Academic Processes**

- modification of frequency or schedule of course offerings
- improvements of technology
- changes in personnel
- implement additional training
- other implemented or planned change
- revision of advising standards or processes
- revision of admission criteria

### ► **Developing Recommendations for Change**

The intent of assessment is to identify weaknesses and then to implement changes in an effort to improve the program. These changes could impact number of aspects of the program: curriculum, staffing, facilities, internal processes, and intended student learning outcomes, for example.

## Step 11: Monitor Changes and Compare Results

### Develop plan to monitor changes and compare current data with previous years' data

At this point in the continuous improvement cycle, the planned changes should be implemented. In some cases, the changes are easy to implement, while in other instances, the proposed changes will have to be implemented over a period of time or through a series of steps.

The implemented changes should be monitored to determine whether or not the changes made have the desired effect(s). One way of achieving this is to use the same assessment plan as used in the previous cycle and compare the actual data to the intended data. Any gaps should be studied carefully to determine the underlying cause.

In situations, the outcomes have been met the action might be to continue monitoring the outcome to ensure quality. Alternatively, you can define another outcome to assess.

- ▶ Select assessment methods prudently and make sure that they are good **assessors of effectiveness** of the program. A primary objective of assessment is to uncover issues that, when addressed, will lead to improvements in student learning. Complex measures are not necessarily the key to successful assessment. Instead consider measures that provide you with information that is easily interpreted and unambiguous and that can be used to improve student learning, where necessary. Using elaborate methods that do not provide suggestions on learning improvement is a waste of time and resources.
- ▶ Determine beforehand if there are **available resources** to assist in the collection of data on the chosen measure. Does the data exist or is the collection of data going to be required. If so, determine whether the data are difficult or easy to obtain. Consider assessment methods for which data might already exist. The Assessment Coordinator may have information that may be useful for your assessment plan. Avoid selecting assessment methods that require complex data collection techniques

## Step 12: Review Information

In some instances, the data collected are not helpful for developing recommendations and action plans. In these cases, re-examine the assessment methods to determine if you have chosen appropriate methods.

- ▶ In some cases, it might be highly constructive to start with a pilot test and collect data from a small sample. This will help you determine if the scope of the data collection is feasible in terms of resources and time.
- ▶ Select methods that provide information that can be **directly controlled** by the department or program. An assessment method that is influenced by external factors beyond the control of the program will yield data that are meaningless to you since you will not be able to impact that aspect of the student learning process.
- ▶ **Multiple assessment measures or triangulation** are required for each learning outcome. The use of multiple methods provides richer data and benefits students, faculty and other stakeholders in the following ways: 1) different components of one outcome can be assessed, and 2) an acceptable level of accuracy and authority can be achieved. If a nationally normed measure or standardized test is used a second measure is not normally required. Consider using both **qualitative and quantitative** assessment methods.
- ▶ The **strengths and weaknesses** of your program assessment should be evaluated. The intended learning outcomes and the assessment methods should be reviewed for appropriateness. The intended outcomes should clearly support the mission of the program and the measures that are selected to assess the outcomes should be suitable for the outcome (e.g. surveys to assess student satisfaction, portfolios to assess students' writing ability).
- ▶ Ensure that the assessment method is **reliable and valid**. A reliable assessment method is one that yields consistent responses over time. A valid assessment method is one that measures what it is supposed to measure, with minimum interference from other variables.
- ▶ Determine when the changes made will be assessed. **Timeliness** is central to meaningful assessment.

## 2006-2007 Annual Cycle of Assessment

Date	Assessment of Student Learning	Assessment of Institutional Effectiveness
Ongoing throughout the year	<ul style="list-style-type: none"> <li>• Outcomes Assessment Committee meets monthly to review, coordinate, and support CC assessment efforts.</li> <li>• General Education Committee meets monthly</li> <li>• Faculty, administrators, and staff participate in external assessment training and conduct training sessions internally.</li> <li>• NCA-HLC Steering Committee meetings</li> </ul>	
September	<ul style="list-style-type: none"> <li>• Program Assessment Reports are reviewed</li> <li>• Program Assessment Reports are put into a database</li> <li>• AC meets with Programs/Departments to evaluate results from previous year, discuss changes, and develop an Annual Assessment Plan and Report</li> <li>• OAC discusses topic of October Student Focus Group</li> <li>• OAC discusses October Assessment Daze</li> </ul>	<ul style="list-style-type: none"> <li>• AC meets with Programs/Departments to discuss assessment efforts</li> <li>• AC meets with Programs/Department to discuss an Annual Assessment Plan and Report and Student Success Advisory Committee</li> </ul>
September 30	<ul style="list-style-type: none"> <li>• 1<sup>st</sup> issue of <i>Assessment In Action</i> newsletter distributed</li> </ul>	
October	<ul style="list-style-type: none"> <li>• Student Focus Group #1</li> </ul>	
	<ul style="list-style-type: none"> <li>• AC reviews Course outcomes</li> <li>• Course Assessment Matrix are distributed to all instructors DUE Jan 1</li> </ul>	
October Assessment Daze TBA	<ul style="list-style-type: none"> <li>• OAC coordinates training/workshop day</li> </ul>	<ul style="list-style-type: none"> <li>• OAC coordinates training/workshop day</li> </ul>
October 30	<ul style="list-style-type: none"> <li>• 2<sup>nd</sup> issue of <i>Assessment in Action</i> newsletter distributed</li> </ul>	
November	<ul style="list-style-type: none"> <li>• AC meets with instructors to review Course Outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• 1<sup>st</sup> meeting of the Student Success Advisory Committee</li> </ul>
November 30	<ul style="list-style-type: none"> <li>• 3<sup>rd</sup> issue of <i>Assessment in Action</i> newsletter distributed</li> </ul>	
December	<ul style="list-style-type: none"> <li>• Searchable database of course/program level outcomes posted to the web</li> <li>• Mid-year General and Development Education Assessment Plans reported to campus</li> </ul>	
January	<ul style="list-style-type: none"> <li>• Course Assessment Matrix are DUE Jan 1</li> <li>• AC meets with Programs/Departments to evaluate mid-year progress</li> <li>• OAC discusses February Assessment Daze</li> <li>• OAC discusses topic of February Student Focus Group</li> </ul>	<ul style="list-style-type: none"> <li>• AC meets with Programs/Departments to evaluate mid-year progress</li> </ul>
January 30	<ul style="list-style-type: none"> <li>• 4<sup>th</sup> issue of <i>Assessment in Action</i> newsletter distributed</li> </ul>	

February	<ul style="list-style-type: none"> <li>• Course Assessment Matrix are distributed to all instructors DUE May 1</li> </ul>	<ul style="list-style-type: none"> <li>• 2<sup>nd</sup> meeting of the Student Success Advisory Committee</li> </ul>
	<ul style="list-style-type: none"> <li>• Student Focus Group #2</li> </ul>	
February Assessment Daze TBA		
February 28	<ul style="list-style-type: none"> <li>• 5<sup>th</sup> issue of <i>Assessment in Action</i> newsletter distributed</li> </ul>	
March	<ul style="list-style-type: none"> <li>• Administer the CSSSE</li> </ul>	<ul style="list-style-type: none"> <li>• Administer the CSSSE</li> <li>• Registration Survey</li> </ul>
March 30	<ul style="list-style-type: none"> <li>• 6<sup>th</sup> issue of <i>Assessment in Action</i> newsletter distributed</li> </ul>	
April	<ul style="list-style-type: none"> <li>• AC meets with Programs/Departments to discuss Annual Assessment Report progress</li> </ul>	<ul style="list-style-type: none"> <li>• AC meets with Programs/Departments to discuss Annual Assessment Report Progress</li> </ul>
April 30	<ul style="list-style-type: none"> <li>• 7<sup>th</sup> issue of <i>Assessment in Action</i> newsletter distributed</li> </ul>	
May	<ul style="list-style-type: none"> <li>• Course Assessment Matrix are DUE May 1</li> <li>• End of year, General Education and Developmental Education plans presented to campus</li> </ul>	
May 30	7 <sup>th</sup> issue of <i>Assessment in Action</i> newsletter distributed	
June		
July		
August 1	<ul style="list-style-type: none"> <li>• Annual Assessment Report due to AC</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Annual Assessment Report due to AC</li> </ul>
September 2007	<ul style="list-style-type: none"> <li>• Outcomes Assessment Committee reviews department/program Annual Assessment Reports</li> </ul>	<ul style="list-style-type: none"> <li>• AC reviews department/program Annual Assessment Report</li> </ul>
Mid-September 2007	<ul style="list-style-type: none"> <li>• AC writes the campus wide Assessment Report for community-wide distribution</li> </ul>	

## Casper College Three-year Assessment Plan for Continuous Improvement

	Institution-Level	Program-Level	Course-Level	Other
Academic Year 2006-2007	1. CCSSE year 1 (March/April)  2. Establish a student review committee	All CC syllabi contain measurable learning outcomes  1. On-line outcomes for each program with searchable database  2. Program Review Process designed  3. Implementation of Program Review Process tied to outcomes assessment  General Education Assessment Plan  Pilot-General Education Graduate Survey  First Review of Program Assessment Plans	1. On-line syllabi for each course  2. On-line course level outcomes with searchable database	
Academic Year 2007-2008	1. CCSSE year 2 (March/April)	General Education Graduate Survey		
Academic Year 2008-2009	1. CCSSE year 3 (March/April)	General Education Graduate Survey		

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