ASSESSMENT WORKBOOK
OFFICE FOR ASSESSMENT OF STUDENT LEARNING
California State University, Stanislaus

Developed by:

Gary Novak, Ph.D., Faculty Coordinator for the Assessment of Student Learning

With Contributions by:

Erin T. Prevette and Lori L. Phillips

2005 –2006

Table of Contents

THE PURPOSE OF THIS WORKBOOK

This manual has been compiled as a resource for writing and implementing program assessment plan and reports at CSU Stanislaus. It was developed using numerous references, but is based predominantly on the works of Mary J. Allen, C.A. Palomba & Trudy Banta, Linda Suskie, Barbara Walvoord and the Western Association of Schools and Colleges (WASC) guidelines for accreditation. The purpose of this guide is not to serve simply as a checklist, but to lead to reflection on your program's student learning objectives and your student's ability to achieve those learning goals.

ASSESSMENT IS......

"*...*defined as a continuous process used by the University (a) for evaluating the degree to which all University programs and services contribute to the fulfillment of the University's primary mission; and (b) for documenting and improving the University's effectiveness."

- *Assessment Plan,* **CSU Stanislaus (1997)**

"…an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and 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 performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education.

- **Angelo (1995)**

"…the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development."

- **Palomba & Banta (1999)**

LEARNING IS DESCRIBED AS:

> Learning not only involves the acquisition of basic academic skills and the broad-based knowledge of a liberal education but goes beyond these to include inspiring and enabling students to become autonomous learners, critical thinkers, creative problem-solvers, and thoughtful, reflective citizens with a passion for life-long learning.

- *Pathways to Learning,* CSU Stanislaus (1998)

ASSESSMENT OF STUDENT LEARNING.....

> AT THE PROGRAM LEVEL is an ongoing process aimed at understanding and improving student learning, involving:
>
> a. Making our expectations explicit and public;
> b. Seeking appropriate criteria and high standards for learning quality;
> c. Systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and
> d. Using the resulting information to improve performance.

- *10 Methods*, CSU Stanislaus (2006)

PART I: WHAT IS ASSESSMENT?

Extracted From:
  Principles of Assessment of Student Learning

> ➤ The primary purpose of assessment at California State University, Stanislaus is improving student learning.

> ➤ Assessment of student learning is based on goals reflected in the University's mission.

> ➤ Assessment of student learning must have course and program significance.

> ➤ Assessment of student learning depends on clear and explicit learning goals.

> ➤ Assessment involves a multi-method approach.

> ➤ Assessment results will be used for decision making in planning and improvement processes.

> ➤ The results of assessment activities will not be used for the evaluation of individual faculty.

> ➤ Assessment data will not be used to make comparison across programs, departments, or colleges.

> ➤ Successful assessment requires University support.

For the full text of this document, visit:
Principles of Assessment of Student Learning (2004) at:
http://www.csustan.edu/FacultyHandbook/appxx.htm

PART II

DEVELOPING AN ASSESSMENT PLAN

"The overriding purpose of assessment is to understand how educational programs are working and to determine whether they are contributing to student growth and development."

- Palomba and Banta (1999)

This section includes components for developing an effective program* assessment plan. Throughout the remainder of this document, these components are defined and references provided to create a plan unique to your program's specific needs. A sample assessment plan template incorporating these components is included in Appendix A.

THE COMPONENTS INCLUDE:

1. *Agree on your mission*
2. *Develop program learning goals*
3. *Create student learning objectives*
4. *Develop a strategy*
5. *Identify assessment methods*
6. *Develop a curriculum map*
7. *Collect data*
8. *Evaluate data*

---

* Please note that the term "program" is a generic term referring to either a department or program.

1

"The mission statement should be compatible with that of the university and be accessible to potential students and families."

- Allen (2004) p.29

❖ The program's mission statement should provide an overview of the program's philosophy, goals and objectives. Basically, it should embody the program's purpose and faculty priorities for the program.

REFERENCES

Print Resources:

▪ Allen, Mary J. *Assessing Academic Programs in Higher Education.* Bolton, MA: Anker Publishing, 2004

▪ Suskie, Linda. *Assessing Student Learning: A Common Sense Guide.* Anker Publishing, 2004.

▪ Walvoord, Barbara. *Assessment Clear and Simple: A Practical Guide for Institutions, Departments, and General Education.* San Francisco: Jossey-Bass Publishers, 2004.

2. DEVELOP PROGRAM LEARNING GOALS

"*Goals* state what you, your colleagues, or you institution aim to achieve."

- Suskie (2004)

❖ Program learning goals describe broad learning outcomes and concepts that you, as faculty, want students to achieve. These learning goals are expressed in general terms such as critical- thinking, appreciation of diversity, etc… - adapted from OAPA UMASS

EXAMPLE:

Excerpt from Chemistry Assessment Plan

→ **Goal 1: Graduates will demonstrate knowledge of competency extending throughout the main sub-disciplines of chemistry.**

Learning Outcomes: Students will perform at the national norm percentile levels on American Chemical Society Standardized Tests in a particular sub-division

Data Collection & Evaluation: The instructor(s) of record for each class utilizing the standardized tests (general chemistry, organic chemistry) will submit a class performance report to the departmental curriculum committee each semester the course is taught.

Feedback: The curriculum committee will evaluate student progress and make recommendations based on both short-term and long-term trends.

See Appendix D for Entire Plan

REFERENCES:

Print Resources:

- Allen, Mary J. *Assessing Academic Program in Higher Education.* Anker Publishing, 2004. Chapter 2: Defining Learning Objectives.
- Suskie, Linda. *Assessing Student Learning: A Common Sense Guide*. Anker Publishing, 2004. Chapter 5: Developing Learning Goals.

Online Resources:

- University of Massachusetts, Amherst. Program-Based Review and Assessment: Tools & Techniques for Program Improvement. Fall 2001. Chapter 2: "Defining Goals and Objectives."
  http://www.umass.edu/oapa/oapa/publications/online_handbooks/program_based.pdf

3. CREATE STUDENT LEARNING OBJECTIVES

Learning objectives, also called student learning goals or student learning outcomes (SLOS), basically flesh out the program learning goals by outlining observable behaviors that can be measured by the faculty to gauge whether students are mastering goals. These objectives include the specific and measurable skills, aptitudes and values that students should exhibit and will allow faculty to evaluate student achievement of the broader program goals.

- adapted from OAPA UMass

"The student learning goals are specific statements derived from your program learning goals. These student learning goals should focus on what the student will learn and master rather than what will be taught; they should explain how students will demonstrate this mastery and should identify the depth of processing that faculty expect."

-    Allen (2004) p.34

These objectives can be identified from several possible resources, including departmental discussions. Linda Suskie (2004) suggests the following as possible sources for uncovering learning goals:

- Your institution's mission and vision statement
- Standards espoused by appropriate disciplinary associations and accreditation organizations
- Course syllabi
- Capstone experiences
- Angelo and Cross' s 1993 "Teaching Goals Inventory" (faculty rate the importance of a variety of goals).
- Surveys or interviews of prospective employers
- Admissions criteria for academic programs your students pursue after program completion

EXAMPLE:

Excerpt from Chemistry Assessment Plan

Goal 1: Graduates will demonstrate knowledge of competency extending throughout the main sub-disciplines of chemistry.

Learning Outcomes: Students will perform at the national norm percentile levels on American Chemical Society Standardized Tests in a particular sub-division

Data Collection & Evaluation: The instructor(s) of record for each class utilizing the standardized tests (general chemistry, organic chemistry) will submit a class performance report to the departmental curriculum committee each semester the course is taught.

Feedback: The curriculum committee will evaluate student progress and make recommendations based on both short-term and long-term trends.

REFERENCES:

Appendix B: Bloom's Taxonomy of Educational Objectives
Appendix C: Sample Program Goals & Learning Objectives:
                 Communication Studies

Print Resources:

- Allen, Mary. *Assessing Academic Programs in Higher Education.* Anker Publishing, 2004. Chapter 2: Defining Learning Objectives

- Suskie, Linda. *Assessing Student Learning: A Common Sense Guide.* Anker Publishing, 2004. Chapter 5: Developing Learning Goals

- Walvoord, Barbara. *Assessment Clear and Simple*. San Francisco: Jossey-Bass pp. 52-55; 103-113.

Online Resources:

- Angelo, T.A. and Cross, K. "Teaching Goals Inventory." Classroom Assessment Techniques: A Handbook for College Teachers. San Francisco, Jossey-Bass pp. 393-397. Available online at:
http://www.uiowa.edu/~centeach/tgi/privacy.html

- Bloom's Taxonomy. "Major Categories in the Taxonomy of Educational Objectives." Available online at http://faculty.washington.edu/krumme/guides/bloom.html

- California Academic Press. Student Outcomes Assessment: Opportunities and Strategies. http://www.calpress.com/outcome.html

- "How to Write Student Learning Outcomes." Kansas State University – http://faculty.washington.edu/krumme/guides/bloom1.html

- Kirkpatrick's Four Levels of Evaluation." Encyclopedia of Educational Technology – http://coe.sdsu.edu/eet/Articles/k4levels/index.htm

- St. Cloud University. "Guidelines for Program Assessment." http://condor.stcloudstate.edu/~assess/edgoals.html

Developing a strategy will define "who is going to do what, when they will do it, and how they will use the information that is generated."

- Palomba & Banta (1999) p.46

Three criteria should be kept in mind in developing a successful, consistent plan:

1. Make it meaningful
2. Keep it simple
3. Make is sustainable

As Mary Allen suggests in Assessing Academic Programs in Higher Education (2004), Faculty members do not have to go into data overload during the evaluation and implementation process. Rather than focusing on the evaluation of all of the goals at once, the program assessment coordinator chair should focus on one or two student learning goals per assessment cycle. To initiate an assessment program, faculty may want to choose one goal that they are fairly certain their students are mastering, so they will be able to start their assessment plan off on a good foot.

SEE APPENDIX D: Sample Assessment Plan: Chemistry

❖ After faculty have identified the student learning objectives for the program, an audit may be necessary to determine where assessment of these goals is already occurring.

A summary by Walvoord, "Conducting an Assessment Audit," includes the following steps:

▪ First, looking at classroom assessment, faculty should identify how he or she assesses departmental student learning goals in their courses.

▪ Secondly, the program should identify assessment of student learning goals conducted outside the individual classroom. Walvoord suggests that faculty make a list of the assessment measures currently in use, both direct and indirect.

▪ Finally, these measures should be evaluated to determine whether or not they are, indeed, assessing a stated goal. Walvoord suggests that mature programs usually use several different methods to assess their goals; selection of methods will be determined by the characteristics of the discipline.

- Walvoord (2004) pp.55-58

DIRECT VS. INDIRECT ASSESSMENT

DIRECT ASSESSMENT – "Directly evaluates student work. Examples of direct measures include exams, papers, projects, computer programs, interactions with a client."

-Walvoord (2004) p.13

Some Examples Include:

- Published Tests
- Writing Proficiency
- Portfolios
- Capstone Course
- Comprehensive Examinations
- Other written work or performances
- Embedded exams, assignments, etc.
- Grades (when explicitly tied to learning goals)

USING GRADES AS DIRECT ASSESSMENT

Assessment agencies often discourage the use of grades as an assessment measure. As Walvoord states, *this is only the case when grades are not linked to explicit learning goals.* Since grading is, fortunately or not, a large part of our system, we may as well us it in our assessment.

Walvoord (2004) recommends conducting the following test to use grading in the assessment process.

- Ensure that the classroom exam or assignment actually measures the goals

- State explicitly in writing the criteria for evaluating student work in sufficient detail to identify students' strengths and weaknesses

- Develop systematic ways of feeding information about students strengths and weaknesses back to decision makers at the departmental, general education, and institutional levels, and using that information for programmatic improvement.

- Walvoord (2004), p.14

INDIRECT ASSESSMENT – "Student (or others) perceptions of how well students have achieved an objective."

- Allen (2004) p.169

Some Examples Include:

- Focus Groups
- Graduating Senior Survey
- Alumni Survey
- Employer Survey
- Exit Interviews
- Student Course Evaluation
- Graduation Retention Rate

❖ When choosing which indirect measures, if any, to use, choose methods appropriate to your program. For example, using a focus group in a department with ten graduates makes more sense than sending out a senior survey.

REFERENCES

Print Resources:

- Allen, Mary J. *Assessing Academic Programs in Higher Education*. Anker Publishing, 2004. Chapters 5 & 6: Direct and Indirect Assessment Techniques.

- Walvoord, Barbara. Assessment Clear and Simple. San Francisco: Jossey-Bass, 2004. See "Building Assessment on the Grading Process" pp. 13-15.

Online Resources:

- University of Wisconsin, Madison. *Outcomes Assessment: A Manual.*
  http://www.wisc.edu/provost/assess/manual.html

> **QUALITATIVE VS. QUANTITATIVE MEASURES**

Not all assessment data must be quantitative; in fact, a mixture of quantitative and qualitative measures may offer the most effective means of measuring student learning outcomes and program goals. Of course, the assessment measure chosen should be fashioned to the unique needs of the program.

QUALITATIVE ASSESSMENT – "Assessment findings that are verbal descriptions of what was discovered, rather than numerical findings." - Allen (2004) p.171

Some Examples Include:
- Exit Interviews
- Focus Groups
- Writing Samples
- Open-ended questions on surveys and interviews
- Employer interviews

QUANTITATIVE ASSESSMENT – "Assessment findings are summarized with a number that indicates the extent of learning." – Allen (2004) p.171

Some Examples Include:
- Written and Oral Exams
- Research Papers
- Senior Projects
- Exam Scores
- Course Grades

REFERENCES

Print Resources:

- Allen, Mary. *Assessing Academic Programs in Higher Education*. Anker Publishing, 2004. Chapter 1: Assessing Educational Outcomes.

Curriculum maps allow programs to develop an inventory that aligns objectives with curriculum. Once the program establishes this alignment, the current curriculum can be evaluated for its effectiveness in achieving the program's learning goals.

A map or matrix illustrating each program's student learning goals as embedded in the curriculum (courses) can be used to describe the integration of learning goals into the program's curricula. While the specific format may vary depending on program, the map should illustrate the cross-section of specific student learning goals, each course in the major curriculum contributing to the teaching of these goals, and the methods used to assess the specific student outcomes. Coding may be used to show the degree to which objectives are to be achieved in each course (such as high, moderate, low). Additional information may be included in the map (such as the type of measure used) as best fits the program.

REFERENCES:

Appendix E: Curriculum Map Template

Print Resources:

- Allen, Mary J. *Assessing Academic Programs in Higher Education.* Anker Publishing, 2004
- Diamond, Robert M. *Designing and Assessing Courses and Curricula: A Practical Guide.* San Francisco: Jossey-Bass, 1998.
- Maki, Peggy L. Assessing for Learning: Building a Sustainable Commitment Across the Institution. Sterling, VA: Stylus, 2004

There is a consensus that data should not be collected just for the sake of collecting data; there is a need to 'close the loop' by discussing the findings with the faculty and then acting on those findings and discussions. Usually, this involves the faculty meeting as a group to consider the assessment findings, and making suggestions for change that will improve student learning.

❖ Once methods of assessment have been established the program can determine how data will be collected by the Program Assessment Coordinator for reporting purposes.

EXAMPLE:

Excerpt from Chemistry Assessment Plan

Goal 1: Graduates will demonstrate knowledge of competency extending throughout the main sub-disciplines of chemistry.

Learning Outcomes: Students will perform at the national norm percentile levels on American Chemical Society Standardized Tests in a particular sub-division

Data Collection & Evaluation: The instructor(s) of record for each class utilizing the standardized tests (general chemistry, organic chemistry) will submit a class performance report to the departmental curriculum committee each semester the course is taught.

Feedback: The curriculum committee will evaluate student progress and make recommendations based on both short-term and long-term trends.

See Appendix D for Entire Plan

❖ In order to use the collected data efficiently, they must be analyzed in a manner that displays the strengths and weaknesses of the program. This information can then be used to establish the appropriate modifications needed to improve student learning.

> *According to Suskie (2004) there are four basic steps to this process:*
>
> 1. Summarize your results
> 2. Evaluate the quality of your assessment strategies
> 3. Analyze results
> 4. Plan the layout of your results

REFERENCES

Print Resources:

- Suskie, Linda. *Assessing Student Learning: A Common Sense Guide*. Bolton, MA: Anker Publishing, 2004. Chapter 14: Summarizing and Analyzing Assessment Results

Online Resources:

- Towson University. "Analyzing Assessment Data." http://pages.towson.edu/assessment/analyzing_data_external_links.htm

ASSESSMENT RESULTS

"Assessment makes a difference when it begins with the issues of use and illuminates questions that people really care about."

- AAHE, *Nine Principles of Good Practice for Assessing Student Learning*

In most cases departments will be concerned with reporting data…

- Among themselves for the purpose of improving student learning and curriculum changes.
- To the university in the form of academic program review
- To the Faculty Coordinator for the Assessment of Student Learning to demonstrate that the department is using results to improve student learning on an ongoing basis.

In the Bridgewater State College Assessment Guidebook (2006), the following advice is given for sharing assessment results:

"How own frames the results is critical. Assessment results should never be used as evidence of a particular person's shortcomings. In the spirit of program assessment, one always needs to ask 'How can we do better?' Viewed this way, assessment is an opportunity to improve ourselves and do better jobs for the students we serve. With continual improvement, we all succeed."

MEETING TO DISCUSS RESULTS

It is integral to the assessment plan process that faculty meet to discuss results and decide what measures will be taken to use the results to improve student learning. To make program's efforts meaningful and sustainable it is necessary to link results with action. In the example below, the program has established a means of "closing the loop" by designating a curriculum committee within the program who will meet to discuss findings and make recommendations.

EXAMPLE:

Excerpt from Chemistry Assessment Plan

Goal 1: Graduates will demonstrate knowledge of competency extending throughout the main sub-disciplines of chemistry.

Learning Outcomes: Students will perform at the national norm percentile levels on American Chemical Society Standardized Tests in a particular sub-division

Data Collection & Evaluation: The instructor(s) of record for each class utilizing the standardized tests (general chemistry, organic chemistry) will submit a class performance report to the departmental curriculum committee each semester the course is taught.

Feedback: The curriculum committee will evaluate student progress and make recommendations based on both short-term and long-term trends.

See Appendix D for Entire Plan

❖ The next step is to decide what recommendations and changes will be made according to the resources available.

Based on the results that you received, will any modifications be made to improve student learning?

Use the results to:

- Evaluate learning goals: Are there too many, do they need clarification, are they appropriate?

- Evaluate curriculum: Does it address all of the learning goals? How can courses be modified to do so?

- Evaluate teaching methods: Can any improvement be made in this area toward empowering students to achieve learning goals?

- Evaluate the assessment methods used: Were they appropriate?

- Adapted from Suskie (2004) Chapter 16

REFERENCES

Print Resources:

- Suskie, Linda. Assessing Student Learning: A Common Sense Guide. Bolton, MA: Anker Publishing, 2004. Chapter 16: Using Assessment Findings Effectively and Appropriately.

Online Resources:

- Towson University. "Making Good Use of Assessment Results." http://pages.towson.edu/assessment/good_use_of_asmt_results.htm

Using the Assessment Report Form (see Appendix F), results will be reported in the program's Academic Program Review and annual assessment report, as well as being posted on university websites for accreditation purposes. The form is available on the Assessment of Student Learning website at http://www.csustan.edu/ASL/

In addition to the Assessment Report, the program faculty/committee should consider including the program learning goals and assessment tools on program websites and in catalog descriptions to ensure that departmental procedures are visible to all audiences; making goals and tools clear to students will show them what faculty deem to be important and therefore help them succeed.

PROGRAM ASSESSMENT PLAN TEMPLATE

California State University, Stanislaus

MISSION:

PROGRAM GOALS:

STUDENT LEARNING GOALS/ OBJECTIVES:

CURRICULUM MAP:

HOW WILL DATA BE COLLECTED?

HOW WILL DATA BE EVALUATED AND RECOMMENDATIONS MADE?

**MAJOR CATEGORIES IN THE TAXONOMY OF
EDUCATIONAL OBJECTIVES
(BLOOM 1956)**

Available at:
   http://faculty.washington.edu/krumme/guides/bloom.html

Categories in the Cognitive Domain
   (With Outcome Illustrating Verbs)

Knowledge of terminology: specific facts; ways and means of dealing with specifics (conventions, trends and sequences, classifications and categories, criteria, methodology); universals and abstractions in a field (principles and generalizations, theories and structures). Knowledge is (here) defined as the remembering (recalling) of appropriate, previously learned information.
   VERBS: defines; describes; enumerates; identifies; labels; lists; matches; names; reads; records; reproduces; selects; states; views

Comprehension: Grasping (understanding) the meaning of informational materials.
   VERBS: classifies; cites; converts; describes; discusses; estimates; explains; generalizes; gives examples; makes sense out of; paraphrases; restates (in own words); summarizes; traces

Application: The use of previously learned information in new and concrete situations to solve problems that have single or best answers.
   VERBS: acts; administers; assesses; charts; collects; computes; constructs; contributes; controls; determines; develops; discovers; establishes; extends; implements; includes; informs; instructs; operationalizes; participates; predicts; prepares; preserves; produces; projects; provides; relates; reports; shoes; solves; teaches; transfers; uses; utilizes

Analysis: The breaking down of informational materials into their component parts, examining (and trying to understand the organizational structure of) such information to develop divergent conclusions by identifying motives or causes, making inferences, and/or finding evidence to support generalizations.
   VERBS: breaks down; correlates; diagrams; differentiates; discriminates; distinguishes; focuses; illustrates; infers; limits; outlines; points out; prioritizes; recognizes; separates; subdivides

Synthesis: Creatively or divergently applying prior knowledge and skills to produce a new or original whole.
   VERBS: adapts; anticipates; categorizes; collaborates; combines; communicates; compares; compiles; composes; contrasts; creates; designs; devises; expresses; facilitates; formulates; generates; incorporates; individualizes; initiates; integrates; intervenes; models; modifies; negotiates; plans; progresses; rearranges; reconstructs; reinforces; reorganizes; revises; structures; substitutes; validates

Evaluation: Judging the value of the material based on personal values/opinions, resulting in an end product, with a given purpose, without real right or wrong answers.
   VERBS: appraises; compares & contrasts; criticizes; critiques; decides; defends; interprets; judges; justifies; reframes; supports

SAMPLE PROGRAM GOALS & LEARNING OBJECTIVES
DEPARTMENT OF COMMUNICATION STUDIES

PROGRAM GOALS:

Overall objectives of the program are to provide the student with opportunities to gain:

- An understanding of the theories and processes of human communication as a necessary part of one's education in the liberal arts and sciences
- A requisite background in the diverse theories and methodologies of the discipline as a preparation for graduate study
- A specialized knowledge of and proficiency in the communicative arts and sciences for entrance into such communication careers such as public relations, newspaper reporting, radio and television broadcasting, media sales and promotions, and communications research
- A specialized knowledge of and proficiency in the communication arts and sciences for entrance into such professional programs as education, law, the ministry, public service and business.

STUDENT LEARNING GOALS/OBJECTIVES

Graduates of the Communications Studies Program will meet the following objectives:

Knowledge and Skills
- Demonstrate an understanding of the theories and research processes used by communications scholars
- Apply the understanding of theories and research to the design and evaluation of original research proposals and projects
- Practice and demonstrate competence in the ability to speak in a variety of communication contexts
- Practice and demonstrate competence in the ability to work effectively in groups
- Demonstrate their ability to write effectively in a variety of communication contexts
- Demonstrate critical thinking by analyzing and evaluating communication products and processes using relevant communication frameworks

Values
- Apply an ethical framework to communication interactions. Demonstrate an understanding of the variety of communication practices found in a multicultural and globalized society.

SAMPLE ASSESSMENT PLAN: CHEMISTRY

HOW WILL DATA BE EVALUATED AND RECOMMENDATIONS MADE?
The Department will utilize a curriculum committee to oversee formally the collection of assessment data and implementation of the assessment plan outlined in this review document. The   curriculum committee will be responsible for reviewing and refining the assessment plan each academic year to continue to achieve the mission of the Chemistry department and the university. The goals and objectives listed in this document represent the department's priorities for the first installment of a departmental assessment plan.

Goal 1: Graduates will demonstrate knowledge competency extending throughout the main sub-disciplines of chemistry.
   Learning Outcomes: Students will perform at the national norm percentile levels on American Chemical Society   Standardized Tests in a particular sub-discipline.
   Data Collection & Evaluation: The instructor(s) of record for each class utilizing the standardized tests (general chemistry, organic chemistry) will submit a class performance report to the departmental curriculum committee each semester the course is taught.
   Feedback: The curriculum committee will evaluate student progress and make recommendations based on both short-term and long-term trends.

Goal 2: Graduates will think critically in analysis of chemical problems.
   Learning Outcomes: Senior level students will demonstrate appropriate critical thinking skills based on oral presentations and laboratory reports. These skills are developed throughout the curriculum and culminate in the senior level courses.
   Data Collection & Evaluation: The instructor(s) of record for Instrumental Analysis and Advanced Lab will submit a class performance report to the department curriculum committee each semester the course is taught based on the scoring rubric (see rubric below).
Feedback: The curriculum committee will evaluate student progress and make recommendations based on both short-term and long-term trends.

Goal 3: Graduates will communicate effectively in a professional setting.
   Learning Outcomes: Senior level students will demonstrate appropriate critical thinking skills based on oral presentations and laboratory reports. These skills are developed throughout the curriculum and culminate in the senior level courses.
   Data Collection & Evaluation: The instructor(s) of record will submit class performance report to the department curriculum committee each semester the course is taught based on the scoring rubric (see rubric below).

Goal 4: Graduates will demonstrate the ability to work competently and effectively in a laboratory environment.

    <u>Learning Outcomes:</u> Upper division majors will demonstrate appropriate level laboratory skills. These skills are developed throughout the curriculum and will be assessed in the Instrumental Analysis and Advanced Laboratory courses.

    <u>Data Collection & Evaluation:</u> The instructor(s) of record will submit a class performance report to the department curriculum committee each semester the course is taught based on the scoring rubric. (see rubric below).

    <u>Feedback:</u> The curriculum committee will evaluate student progress and make recommendations based on both short-term and long-term trends.

Table 2: Generic Assessment Scoring Rubric

SCORE	DESCRIPTION
5	Student clearly demonstrates superior ability in all regards
4	Student demonstrates above average ability with only a few minor problems
3	Student reasonably demonstrates average ability with at least one major flaw
2	Student barely demonstrates passable ability and has several major flaws
1	Student does not demonstrate a passable ability.

CURRICULUM MAP TEMPLATE

Objectives with high relevance (H), moderate relevance (M), and low relevance (L) to listed courses. Assessment methods are indicated for high relevance	Course number	Course number	Course number	Course number	Course number	Course number	Course number	Course number
Learning Objective:								
Learning Objective								
Learning Objective								
Learning Objective								
Learning Objective								

PROGRAM ASSESSMENT REPORT FORM

California State University, Stanislaus

MISSION:

PROGRAM GOALS:

STUDENT LEARNING GOALS/ OBJECTIVES:

CURRICULUM MAP:
- See Attached Form

WHAT DATA WERE COLLECTED AND HOW?

HOW DID FACULTY USE THE DATA? WHEN DID FACULTY MEET TO DISCUSS FINDINGS?

WHAT RECOMMENDATIONS FOR IMPROVING STUDENT LEARNING WERE MADE?
- Were any changes made to the Assessment Plan? If so, what were they?

REFERENCES

- Allen, Mary J. Assessing Academic Programs in Higher Education. Bolton, MA: Anker Publishing, 2004

- American Psychological Association (APA). www.apa.org

- "Analyzing Assessment Data." Towson University, http://pages.towson.edu/assessment/analyzing_data_external_links.htm

- Angelo, T.A. "Reassessing (and Defining) Assessment." AAHE Bulletin. November, 1995

- Angelo, T.A. and Cross. "Teaching Goals Inventory." Classroom Assessment Techniques: A Handbook for College Teachers. San Francisco: Jossey-Bass, 1993. http://www.uiowa.edu/~centeach/tgi/privacy.html

- Ball State University, Assessment Workbook, 1999

- Bloom, B.S. (Ed). Taxonomy of educational objectives, Vol. 1: The cognitive domain. New York: McKay, 1956 http://faculty.washington.edu/krumme/guides/bloom1.html

- Borden, Victor M.H., and Owens, Jody l. Zak. "Measuring Quality: Choosing Among Surveys and Other Assessments of College Quality." American Council on Education, 2001. http://www.airweb.org/images/measurequality.pdf

- Bridgewater State College. Assessment Guidebook, 2006. www.bridgew.edu/AssessmentGuidebook/chapter6.cfm#results

- California State University, Chico. Assessment Plan, 1998

- California State University Stanislaus, Assessment Plan, 1997

- California State University Stanislaus, Pathways to Learning, 1998

- Diamond, Robert M. Designing and Assessing Courses and Curricula: A Practical Guide. Anker Publishing, 2004

- "Guidelines for Program Assessment." St. Cloud University. http://www.stcloudstate.edu/assessment/guidelines.asp

- Henry, Gary T. Creating Effective Graphs: Solutions for a Variety of Evaluation Data. San Francisco: Jossey-Bass, 1997

- Kansas State University. "Measurements, Tools, Rubrics for Assessing Student Outcomes." www.k-state.edu/apr/Learning/Measures.htm

- Kent State University. "Office of Academic Quality Improvement, 2004." http://explore.kent.edu/aa/

- "Kirkpatrick's Four Levels of Evaluation." Encyclopedia of Educational Technology. http://coe.sdsu.edu/eet/Articles/k4levels/index.htm

- Leskes, Andrea. "Beyond Confusion: an Assessment Glossary." Peer Review. Winter/Spring 2004. Excerpted with permission from Peer Review, Winter/Spring 2004. Copyright held by the Association of American Colleges and Universities

- Lopez, Cecilia. "Opportunities for Improvement: Advice for Consultant-Evaluators on Programs to Assess Student Learning" North Central Accreditation Commission on Institutions of Higher Education March, 1996

- Maki, Peggy L. Assessing for Learning: Building a Sustainable Commitment Across the Institution. Sterling, VA: Stylus, 2004

- "Making Good Use of Assessment Results." Towson University. http://pages.towson.edu/assessment/good_use_of_asmt_results.htm

- "Nine Principles of Good Practice for Assessing Student Learning." American Association for Higher Education (AAHE). http://www.fctel.uncc.edu/pedagogy/assessment/9Principles.html

- Palomba, C.A. & Banta, T.W. Assessment Essentials: Putting Principles to Work on College Campuses. San Francisco: Jossey-Bass, 1999

- "Pencils Down! A Guide for Using and Reporting Test Results." North Central Regional Education Laboratory. http://www.ncrel.org/sdrs/areas/issues/methods/assment/as6penci.htm

- "Principles of Assessment of Student Learning" California State University Stanislaus, 2004 http://www.csustan.edu/FacultyHandbook/appxx.htm

- Suskie, Linda. Assessing Student Learning: A Common Sense Guide. Bolton, MA: Anker Publishing, 2004

- "Student Outcomes Assessment: Opportunities and Strategies." California Academic Press http://www.calpress/com/outcome.html

- "Ten Methods Used at California State University, Stanislaus to Examine Institutional Effectiveness" California State University, Stanislaus, 2005

- University of Massachusetts, Amherst. Program-Based Review and Assessment: Tools & Techniques for Program Improvement. Fall, 2001 http://www.umass.edu/oapa/oapa/publications/online_handbooks/program_based.pdf

- University of Wisconsin, Madison. Outcomes Assessment: A Manual. http://www.wisc.edu/provost/assess/manual.html

- Walvoord, Barbara. Assessment Clear and Simple: A Practical Guide for Institutions, Departments, and General Education. San Francisco: Jossey-Bass Publishers, 2004