



## Assessment Handbook

*August 2017*

To the CR Community,

Assessment at College of the Redwoods is an ongoing process where student learning outcomes are defined, student success in achieving those outcomes is measured, and assessment results are used to improve our curriculum and services. One way we encourage student success is through learning outcomes assessment.

Assessing student learning outcomes gauges what students have learned in the context of program/course expectations and then document the resultant improvements to program and course delivery. Our assessment process is based on the following seven assumptions:

1. All levels of assessment should inform and build upon the others.
2. All faculty and staff should be actively involved.
3. Assessment should be embedded within regular course or program activities whenever possible.
4. Assessment is an ongoing process
5. Assessment is concerned with evaluating the effectiveness of programs, courses, and services, not individuals.
6. The results of assessment activities should be clearly linked to program improvements.
7. The results of assessment activities should be publicly available.

Thanks in advance for your good work.

A handwritten signature in blue ink, appearing to read 'Keith Snow-Flamer'.

Dr. Keith Snow-Flamer  
President/Superintendent  
College of the Redwoods

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## Introduction

The College of the Redwoods Assessment Handbook provides a framework for continuous improvement of student learning and a commitment to program excellence.

This handbook is provided to staff and faculty at College of the Redwoods (CR) to assist in the development of student learning outcomes (SLOs), program level outcomes (PLOs), and assessment practices. CR uses assessment to determine the effectiveness of administrative, academic, and student services programs.

The intrinsic value of the assessment process is evident throughout the cycle of identifying SLOs and PLOs, assessing them, interpreting the data, and using the data to improve programs. External mandates require appropriate, ongoing assessment.

CR's assessment process ensures that SLOs are observable and are performed by the student. Curriculum development and classroom activities are driven by SLOs. Learning opportunities within programs are consistent and clearly map to outcomes determined by faculty and staff. The assessment process further ensures that successful program completion provides students with the requisite skills and abilities described in the General Education (GE) goals. Faculty teaching GE courses provide students with multiple integrated learning opportunities to assure that students will be able to put into practice what they have learned through their academic experiences at CR.

# Overview and Philosophy

## Assessment Committee Mission and Scope

### **Mission**

The Assessment Committee will support the collaborative efforts of faculty and staff in the enhancement of student success by providing guidance and support for the assessment of outcomes and a continuous cycle of improvement.

### **Scope**

The Assessment Committee (AC) provides guidance to committees and individuals about how and why assessment should be conducted, facilitates discussions and decision-making related to assessment work, and helps to ensure that outcomes assessment is embedded in processes as directed by the ACCJC, WASC, CCC Systems (Chancellor's) office, and other accreditation and supervisory organizations.

While the AC may produce summary documents concerning the overall progress and needs of the College, the AC itself will not measure or document the degree to which specific outcomes are achieved.

In order to support its mission, the AC provides guidance to related committees including, but not limited to, the Program Review Committee, Curriculum Committee, and Enrollment Management Committee. The AC will include an Academic Assessment Subcommittee and the Student Services Assessment Subcommittee, as well as other subcommittees related to specific college functions. The AC provides direct support to SS areas for SLO development.

## General Philosophy of Assessment

from Nine Principles of Good Practice for Assessing Student Learning (Astin et al, 1992)

- 1. The assessment of student learning begins with educational values.** Assessment is not an end in itself but a vehicle for educational improvement. Its effective practice, then, begins with and enacts a vision of the kinds of learning we most value for students and strive to help them achieve. Educational values should drive not only *what* we choose to assess but also *how* we do so. Where questions about educational mission and values are skipped over, assessment threatens to be an exercise in measuring what's easy, rather than a process of improving what we really care about
- 2. Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.** Learning is a complex process. It entails not only what students know but what they can do with what they know; it involves not only knowledge and abilities but values, attitudes, and habits of mind that affect both academic success and performance beyond the classroom. Assessment should reflect these understandings by employing a diverse array of methods, including those that call for actual performance, using them over time so as to reveal change, growth, and increasing degrees of integration. Such an approach aims for a more complete and accurate picture of learning, and therefore firmer bases for improving our students' educational experience.
- 3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.** Assessment is a goal-oriented process. It entails comparing educational performance with educational purposes and expectations -those derived from the institution's mission, from faculty intentions in program and course design, and from knowledge of students' own goals. Where program purposes lack specificity or agreement, assessment as a process pushes a campus toward clarity about where to aim and what standards to apply; assessment also prompts attention to where and how program goals will be taught and learned. Clear, shared, implementable goals are the cornerstone for assessment that is focused and useful.
- 4. Assessment requires attention to outcomes but also, and equally, to the experiences that lead to those outcomes.** Information about outcomes is of high importance; where students "end up" matters greatly. But to improve outcomes, we need to know about student experience along the way -about the curricula, teaching, and kind of student effort that lead to particular outcomes. Assessment can help us understand which students learn best under what conditions; with such knowledge comes the capacity to improve the whole of their learning.
- 5. Assessment works best when it is ongoing not episodic.** Assessment is a process whose power is cumulative. Though isolated, "one-shot" assessment can be better than none, improvement is best fostered when assessment entails a linked series of activities undertaken over time. This may mean tracking the process of individual students, or of cohorts of students; it may mean collecting the same examples of student performance or using the same instrument semester after semester. The point is to monitor progress toward intended goals in a spirit of continuous improvement. Along the way, the assessment process itself should be evaluated and refined in light of emerging insights.

- 6. Assessment fosters wider improvement when representatives from across the educational community are involved.** Student learning is a campus-wide responsibility, and assessment is a way of enacting that responsibility. Thus, while assessment efforts may start small, the aim over time is to involve people from across the educational community. Faculty play an especially important role, but assessment's questions can't be fully address without participation by student-affairseducators, librarians, administrators, and students. Assessment may also involve individuals from beyond the campus (alumni/ae, trustees, employers) whose experience can enrich the sense of appropriate aims and standards for learning. Thus understood, assessment is not a task for small groups of experts but a collaborative activity; its aim is wider, better informed attention to student learning by all parties with a stake in its improvement.
- 7. Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.** Assessment recognizes the value of information in the process of improvement. But to be useful, information must be connected to issues or questions that people really care about. This implies assessment approaches that produce evidence that relevant parties will find credible, suggestive, and applicable to decisions that need to be made. It means thinking in advance about how the information will be used, and by whom. The point of assessment is not to gather data and return "results"; it is a process that starts with the questions of decision-makers, that involves them in the gathering and interpreting of data, and that informs and helps guide continuous improvement.
- 8. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.** Assessment alone changes little. Its greatest contribution comes on campuses where the quality of teaching and learning is visibly valued and worked at. On such campuses, the push to improve educational performance is a visible and primary goal of leadership; improving the quality of undergraduate education is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes is seen as an integral part of decision making, and avidly sought.
- 9. Through assessment, educators meet responsibilities to students and to the public.** There is a compelling public stake in education. As educators, we have a responsibility to the public that support or depend on us to provide information about the ways in which our students meet goals and expectations. But that responsibility goes beyond the reporting of such information; our deeper obligation—to ourselves, our students, and society—is to improve. Those to whom educators are accountable have a corresponding obligation to support such attempts at improvement.

# **Guidelines for Assessment Activities**

*College of the Redwoods Academic Senate*

The College of the Redwoods' Academic Senate defines our assessment philosophy and related activities at the college as the following:

## **1. Why assess student learning outcomes?**

The purpose of student learning assessment is to document and improve the college's programs. When we assess our students' learning, we are able to identify which of our teaching practices have been successful and which have not, thus enabling us to modify our teaching practices in order to increase success. When we identify student learning outcomes for our courses and share them with our students, we encourage students to become more actively involved in their own learning.

## **2. What is assessment?**

Assessment is an ongoing process aimed at understanding and improving student learning. It involves making expectations 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 performance. Assessment helps us create a shared academic culture dedicated to assuring and improving the quality of higher education. (AAHE Bulletin 1995)

Assessment is an ongoing process, which ideally permeates the institution. The assessment loop involves both gathering information and using that information to modify and improve teaching and student learning. Outcomes assessment is not for the purpose of evaluating an individual student or a faculty member's performance. Therefore, assessment information will be reported in collective form.

## **3. Who will conduct outcomes assessment?**

It is within the purview of the faculty of College of the Redwoods to identify the core knowledge and skills that our students need to master, in keeping with the college's goals, and to shape, design, and disseminate institutional assessment, as instructed by the Academic Senate.

## **4. Who will develop the processes of assessment?**

It is within the purview of the faculty of College of the Redwoods to develop the criteria by which student progress may be evaluated. These ongoing processes are open to modification and improvement. Not all assessment need be done in individual classes, and not every faculty member need assess all of the core learning. Faculty shall maintain ownership of student learning outcomes and assessment processes.

## **5. What will assessment be used for?**

At College of the Redwoods, ongoing assessment of student learning outcomes helps us understand, and thereby improve, student learning through informed decision making and planning.

Assessment of student learning may include multiple measures. As such, the measures used by department/programs may vary across the college. Specific measures may depend upon both the learning goals and the methods of assessment most appropriate for specific curriculum. Indicators of student learning can be expressed as narratives, a performance, or numbers.

More specifically, assessment helps us:

- Improve services, feedback, guidance, and mentoring to students in order to help them better plan and implement their educational programs
- Design and improve programs and courses
- Plan at the department and program level
- Identify shared definitions and measurable benchmarks for evaluating student abilities
- Understand how groups of students experience the college differently and respond appropriately to the needs of all students
- Align and coordinate courses within and across disciplines
- Align and coordinate courses and programs with external institutions' requirements as necessary
- Continuously reflect, refine and modify teaching and learning practices.

## **6. What will assessment not be used for?**

Effective assessment relies upon a climate of trust and freedom of inquiry. As faculty at College of the Redwoods, we perform assessments of student learning and control the results of our assessments. Data gathered in support of all learning assessment work shall be aggregated so as to remove the identity of any students, faculty, and/or staff.

Therefore, College of the Redwoods:

- Will not use assessment of student learning as an end in itself. Assessment that does not help us promote student learning is a waste of time.
- Will not use assessment of student learning punitively or as a means of determining faculty or staff salaries or rewards. The purpose of assessment is to evaluate student learning, not to reward or punish faculty or staff.
- Will not use any single mode of assessment to answer all questions or strictly determine program decisions.
- Will not use assessment in a way that will impinge upon the academic freedom or professional rights of faculty. Individual faculty members must continue to exercise professional judgment in matters of grading and discipline.

- Is not expected to assess **all** students in order to learn about the effectiveness of our programs and policies; a subset is sufficient.
- Will not assume that assessment is only quantitative. While numerical scales or rubrics (such as the four-point grading scale) can be useful, their accuracy always depends upon the clear understanding of the concepts behind the numbers. We will not assume that assessment is only grading.
- Will not use assessment only to evaluate the end of the student's experience or merely to be accountable to outside parties.
- Will not use student learning outcomes for evaluation of faculty.
- Will not use student learning outcomes data for program/discipline reduction or elimination.

## **7. What is the college's role in assessing student learning?**

Assessment of student learning can significantly enhance the college's ability to fulfill our mission and goals. Consequently, the college supports assessment of student learning as a valued and important activity and provides successful models for developing assessment.

## **8. How will we use assessment of student learning?**

When faculty chooses to assess student learning, we will:

- Always seek multiple methods of assessing student learning rather than relying on any single method.
- Assess those skills, attitudes, behaviors and knowledge that our faculty judges to be important and valuable.
- Assess the ongoing progress of students throughout their experience at College of the Redwoods.
- Use assessment processes and instruments to accommodate and encourage creativity and originality shown by students.
- Explain the purposes of assessment so that staff, students, and the community can see why assessment is being used.

In conclusion, faculty shall facilitate and drive the process of assessment of student learning in their own programs. This process includes the selection of the methods chosen or designed for assessment of student learning, administration of the assessment, analysis of the assessment data, and use of the assessment results.

*This Academic Senate document is based upon the work done by College of Marin, Palomar College, Modesto Junior College, Coastline Community College, and El Camino College.*

## Assessment Quick Guides

### Program-Level Assessment Quick Guide

Program Level Outcome (PLO) assessment activities play a key role in compiling data from courses across the district that are part of degrees or certificates (programs). When aggregated, this data provides a big picture narrative about degree and certificate health and student learning trends. This information is used for continuous, sustainable improvement of student learning and the Integrated Planning process.

PLO sessions are organized by Deans and Associate Deans, and facilitated by Associate Deans and/or faculty where appropriate. Faculty (part-time and full-time) input is critically important for creating meaningful PLO reports. These activities can take place during department meetings or during specially scheduled PLO assessment sessions.

Below is a list of steps that should be followed for the successful execution of a PLO assessment activity. *Steps 1 and 2 should be conducted before or at the beginning of each semester.*

1. **Deans and Associate Deans:** Consult the program-level planning tool to determine which outcome will be assessed during a given semester.

→ **Select “Program Assessment planning”** in the assessment planning tool to find your plan.

2. **Associate Deans or faculty when assigned:** Go to the **Assessment Reporting Page** and click on the Program Assessment Worksheet to organize your assessment session. See the Program Assessment Worksheet Example worksheet listed on the reporting page for suggestions on how to use the worksheet.

3. **Associate Deans or faculty when assigned:** Send the completed worksheet to the constituent group approximately three days before the PLO assessment activity is scheduled. Encourage your Faculty and Associate Faculty to review the data on the worksheet and come to the session ready to discuss the findings. Consider using Completer Data to inform your conversation, as well as other departmental findings. For example: what does the program do to encourage completers? Examples might include: Field trips, visiting scholars, captivating lectures, community events, or sequential courses. Consider what is happening in the program that might prevent students from committing to the major. Examples might include poor course scheduling, dated content/methodology, conflicting advising, poor facilities or ineffective assignments.

4. At the agreed upon day and time, meet and complete the PLO Assessment Report. To find the reporting template, go to the **Assessment Reporting Page** and **Select “Submit & Edit Reports”**. The dialogue associated with this step can be done in person, electronically, or by phone. Comments, observations, and plans for improvement should be gathered on the form, which can be filled out during the session.

***For additional assessment help please contact the Assessment Coordinator.***

## Course-Level Assessment Quick Guide

Course-level assessments are a key component of the college's internal evaluation and improvement process. They are also a requirement of our accrediting agency as well as a faculty contractual obligation. Accordingly, it is important for faculty (part- and full-time) to understand the process and engage in the following procedures:

*Steps 1-3 should occur prior to, or early in, the semester.*

1. Become familiar with the Assessment Process for Instruction, as outlined on our Instructional Assessment web page: <http://archive.redwoods.edu/Assessment/faculty.asp>
2. Consult the course-level planning tool to determine the specific outcome(s) to be assessed during a given semester. **Once in the Assessment software, click “Plans and Maps,” then select “Course Assessment Planning.”**

*Access to the planning tool requires a login using your CR email login and password. If you have email forwarded and do not remember your password, the default is your six digit date of birth (for example: 091215).*

Contact your Associate Dean, Director, or Assessment Coordinator (see below) if you have questions regarding the outcome plans for your course.

3. Contacting other Faculty:
  - Contact other instructors teaching the same course during the same semester and briefly discuss their methods of outcome assessment (test question, project, etc.). The faculty need to determine if the methods will be uniform (same test question, project, etc.) or differ between sections. This is also a good time to discuss any “closing loops” related to past assessments. A listing of faculty teaching the same course can be determined using a section search on Web Advisor.
  - In cases where there are more than three sections of the same course being taught during the same semester, a minimum of three sections need to conduct the assessment. Individual departments can decide to assess more sections, but three will satisfy our requirements. In these cases, faculty are encouraged to sample from sections at different times of the day and, if possible, different locations.
  - Faculty in the chosen sections should also agree upon a day and time for discussing their assessment data. This meeting needs to occur before the reporting deadline. The reporting deadline for each semester is one week after grades are due. Associate Deans or Directors can help if coordination of faculty is difficult.
  - Faculty who are teaching the only section of a course during a given semester are encouraged to discuss their results with faculty in the same or related disciplines.

4. At the agreed upon day and time, meet and complete the course-level assessment report. The dialogue associated with this step can be done in person, electronically, or by phone. The reporting form is at the following site. **Once in the Assessment software, click the “Reports” button, then select “Submit and Edit Reports.”**

*Access to the reporting tool requires a login using your CR email login and password. If you have email forwarded and do not remember your password, the default is your six digit date of birth (for example: 091215).*

Quality of Course-Level Assessment reports, particularly the “Findings” section, is very important, and must include a statement about **how this information will be used to improve student learning**. The following URL is a link to guidelines for completing the report. It also has links to examples of thorough assessment reports. Once in the Assessment software, select “Example Reports” to see examples of assessment reports.

***For assessment help please contact the Assessment Coordinator. The Associate Dean, Dean, or Director overseeing your Division can also provide assistance.***

## Assessment and Canvas

Canvas is the Learning Management System (LMS) used at College of the Redwoods and can play a significant supporting role in the assessment process.

Canvas can be used to provide a framework for systematic data collection, archive of SLO artifacts, shared assessment rubrics, and documentation of the assessment process. It can also streamline and integrate SLOs into the regular routine of the grading process.

Canvas has three main tools that can help with assessment of SLOs. The Assignments, Rubrics, and Outcomes tools can be used individually or in unison to streamline and improve the SLO process for faculty. Faculty who are using Canvas in their courses can integrate an SLO into the regular Canvas grading process. If they are not using Canvas in their course, it can be used as a standalone tool just to organize, share and document SLOs. It can also be used to create a consistent evaluation process that is easy to share across course sections, departments or programs.

In addition to these benefits the Canvas Outcomes tool allows us to meet certain ACCJC Standards by connecting SLO Assessment with student demographic data.

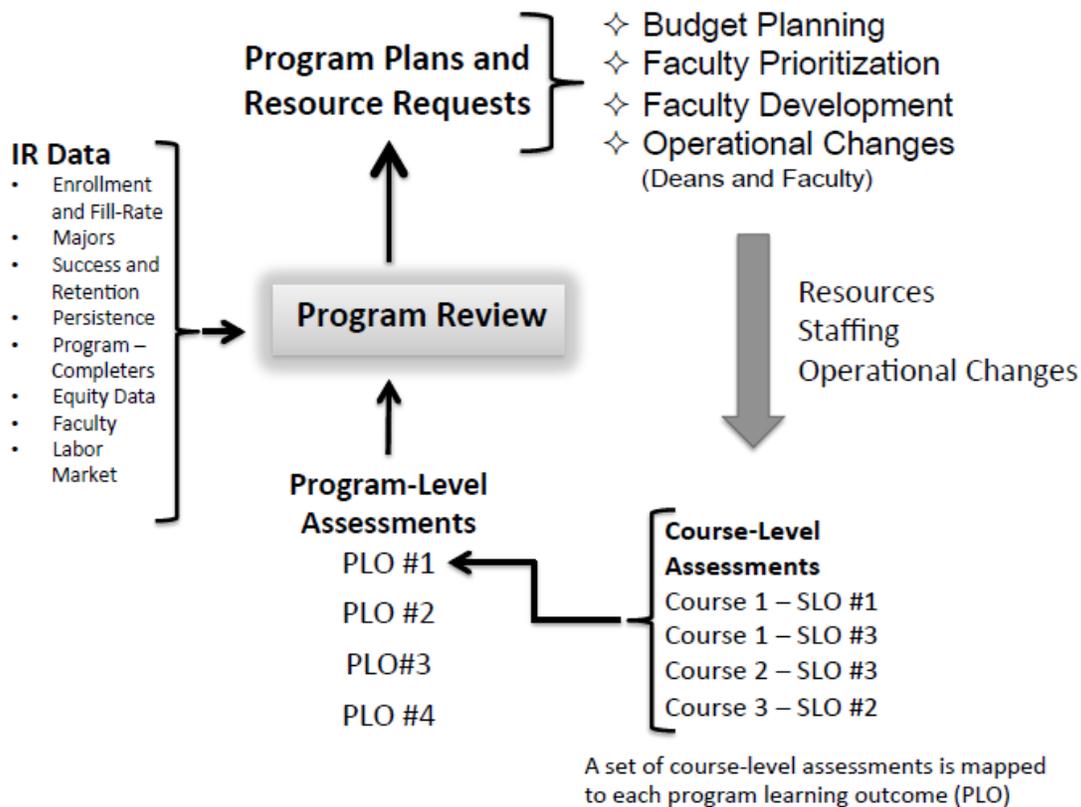
In order to better understand and implement outcomes in Canvas you should contact your Instructional Technologist or DE Faculty Coordinator and ask about using Canvas for outcomes. Visit the [CR-Online Faculty Resources](#) page for contact information and other resources related to Canvas and outcomes.

## “Closing the Loop”: Using Assessment Results in Decision-Making

### Use of Assessment Results to Improve Programs and Services:

For assessment results to be useful in improving instructional programming, effective communication of the results is necessary. The most effective means is typically in summary form with graphic support of tabular data presented orally at departmental faculty meetings.

### *Academic Program Planning and Improvement Process*



### Using the Results:

- Assessment results may be used simply to improve the means of assessment or to restructure the statement of intended educational outcomes
- Assessment results may be used to change or improve a program through a closer alignment of course offerings with the requirements of the work world, or restructuring of course sequencing.
- Program reviews should include assessment results, as well as plans for future assessment.

Methods of improving student learning might include:

- Revising activities leading up to and/or supporting assignment/activities
- Increasing guidance for students as they work on assignments
- Revising the amount of writing/oral/visual/clinical or similar work
- Stating goals or objectives of assignment/activity more explicitly
- Stating criteria for grading more explicitly
- Employing different/revised teaching methods (Explain below)
- Increasing/improving in-class discussions and activities
- Increasing/improving student collaboration and/or peer review
- Providing more frequent and/or more effective feedback on student progress
- Encouraging more interaction with students outside of class
- Seeking out collegial feedback on assignments/activities
- Collect more data

The table below shows examples of prioritized actions to improve student learning, created during Assessment of CR courses:

|   |   |
|---|---|
| <p>ANTH-3<br/>Introduction to Cultural Anthropology</p> | <ul style="list-style-type: none"> <li>• Clearer and more repetitive explanations of how to respond to essay questions</li> <li>• Review of important concepts following their initial presentation</li> <li>• Inclusion of more varied instructional modes, including non-lecture-based methods</li> </ul>   |
| <p>ART-2<br/>Introduction to Art</p>                    | <ul style="list-style-type: none"> <li>• Continue to incorporate digital technologies such as Google docs, YouTube, and Art Stor</li> <li>• Encourage student knowledge of historical and contemporary art trends by assigning student research presentations on course related topics.</li> <li>• Tour students around the Creative Art facilities. This extra effort encourages students to engage deeply in their material and in our discipline.</li> </ul> |

## Where to Find Resources and Information

### **Assessment:**

Resources for conducting Assessment can be found at:

<https://www.redwoods.edu/assess>

The Assessment Committee website (membership, archives, etc.) can be found at:

<https://internal.redwoods.edu/Assessment>

### **Academic Senate:**

<https://internal.redwoods.edu/Senate/>

### **Curriculum:**

Resources about the Curriculum process can be found at:

<https://internal.redwoods.edu/senate/Curriculum/Curriculum-Handbook>

Current Course Outlines of Record (CORs) can be found at:

<https://internal.redwoods.edu/senate/Curriculum/Active-Curriculum>

## Frequently Asked Questions (FAQs)

Assessment is a type of *action research* to help us gather indicators that will be useful for improving student learning through our curriculum and teaching strategies. It focuses on student learning and **what the student will be able to do** and *not so much* on what we are going to teach.

The following Q & As will attempt to provide answers to some frequently asked questions that may further your understanding of the assessment process.

### 1. Why do we assess student learning?

To *do* assessment for the goal of *doing assessment* and writing a report would be a waste of time. Link your assessment practices to compelling, powerful, and consequential processes such as department review or program validation. You can link it to curriculum revisions, distance learning, retention, service learning, and improving student learning and teaching strategies.

There is considerable evidence that assessment drives student learning and curriculum. Most importantly, our assessment tools tell our students what we consider to be important and make clear our expectations of what the student will do to be successful in the course or program. They will learn what we guide them to learn through our assessments. By using appropriate assessment techniques, we can encourage our student to raise the bar. Think of assessment for learning as the “learning process” where both teacher and student receive significant feedback to improve learning.

It's not always the assessments, but the changes they lead to, that are important. Change and innovation take courage, but they're also at the heart of the teaching profession.

### 2. I already give tests and grades. Isn't that assessment?

Not really. Tests and quizzes are an *evaluation* of learned material. Assessment involves a sample of behavior from your student that can be observed and judged on the basis of specific criteria developed and assessed in multiple modes and contexts, the *learning process*. For example, a project, presentation, writing assignment or lab can be used to evaluate student learning. Traditional testing methods are limited measures of student learning and of limited value for guiding student learning. We can't just say that 73% of our students are getting As and Bs, so we must be doing okay. A letter grade itself does not give enough information about the learning that is occurring.

### 3. Aren't student learning outcomes specific tasks that the student will perform?

No, not tasks. Student learning outcomes are generic abilities that can be developed, improved upon, and assessed.

### 4. What is an outcomes-based course?

An outcomes-based course is supported with multiple learning opportunities through which the student can achieve the learning outcomes.

**5. How does assessment FOR learning help faculty?**

It provides teachers with useful information about their students, including the quality of and readiness for learning. Ongoing assessment informs the teachers about the pace and progress of student learning in their classroom.

**6. Is this something extra for me to do? Who should be doing assessment?**

No, it's not extra. You're already assessing. It's those learning opportunities that you have designed in your curriculum where you can give your students on-going feedback in order to improve learning. The primary differences are that assessment targets specific outcomes, rather than giving grades based upon multiple criteria, and assessment is concerned with how the entire group of students is performing, rather than the grade of a single individual. Only faculty who guide the learning process can identify the student learning outcomes of that process, in other words, what it is they expect to happen to/for the student. It is the faculty who teach in that program who can interpret the results, and recommend improvements in pedagogy and curriculum.

**7. How can I assess attitudes and understandings that are simply not quantifiable?**

It seems a common misunderstanding that assessment requires that everything be reduced to statistical measures. The thrust of assessment is objective results such that anyone will know that the learning goals are being met; but this *need not be quantifiable*. If the faculty identify as an important result that which is not quantifiable, the process simply asks them to specify some objective means to demonstrate that the results are happening as intended.

**8. Do student assessment results affect faculty evaluation?**

No. We're focusing on the classroom level. Assessment is informed by the expertise and professional judgment of the faculty. Faculty in an academic department or program, interpreting the results of an assessment measure, might collectively decide to give more attention to certain outcomes, and might even recommend changes in pedagogy.

**9. Why is the ACCJC making us assess?**

Right now, higher education is concerned with two national issues: the learning college and accountability. Most faculty have been engaged in some type of assessment throughout their teaching careers and have found it to be a tool for understanding what their students are learning.

**10. Are associate faculty involved?**

Yes, by all means. All faculty—full and part-time are involved in student learning..

**11. What is the connection among the various levels of assessment?**

The focus of assessment is student learning. The most significant educational interaction happens between students and faculty in the classroom. The individual class section is part of a course, and courses are parts of programs. These levels reflect different, yet interrelated, facets of a student's education.

## **12. How will assessment improve learning?**

Assessment is a tool; however, it is one by which we can communicate with our students about learning with learning opportunities and ongoing feedback. Assessment does not accomplish learning; it provides information to the student and the faculty who may use it to improve learning.

## **13. How does classroom assessment relate to program/discipline assessment, and how does program/discipline assessment fit in with the College's overall assessment efforts?**

Classroom assessment involves assessing student learning in a particular course. This can be accomplished using Classroom Assessment Techniques (CATs), which are quick, ungraded, classroom assignments used to provide feedback for determining student understanding of particular lessons. It is an ongoing process with the primary purpose of improving course-level instruction and student learning.

This is accomplished through an annual process where each program/discipline designs and implements an Assessment Plan, measures learning outcomes, analyzes the data collected, communicates the information, and uses these results to develop an action plan aimed at improving student learning and strengthening CR's assessment efforts.

College assessment efforts include classroom assessment, program/discipline assessment, and assessment of general education. The goal of assessment of student learning at College of the Redwoods is to improve student learning and support the College in fulfilling its educational mission. Assessment provides evidence of how well College of the Redwoods is meeting its mission and helps identify areas for improvement. These improvements might include things like: providing more research materials in the library, finding better means to communicate information about policy changes to students, developing more explicit rubrics for assignments, changing the requirements for a degree, and/or better utilizing feedback from advisory boards.

## **14. How many faculty of a given program should participate in the assessment process?**

All faculty, both full-time and part-time are contractually obligated to participate in assessment. All have a stake in the success of their respective program or discipline.

## **15. How, why, or when would or should a department rotate courses to be assessed?**

College of the Redwoods Assesses SLOs on a four-year cycle. Plans for the four-year cycle can be found and adjusted in the planning tool on the CR Assessment webpage. The four-year cycle was built with the idea of allowing for extra time to make changes and reassess within the four-year cycle if needed. The four-year cycle was implemented to promote meaningful and sustainable assessment. In order to accomplish this, at least 25% of outcomes should be assessed each academic year until all outcomes have been assessed. These assessments are then compiled into reports. Reports containing accurate data and specific narrative are critical for improving student learning. These reports communicate our strengths and growth opportunities in instruction and student services.

## 16. How do faculty within a department identify student learning outcomes?

Some learning outcomes can be mandated by outside agencies or advisory boards. Others are identified through discussion among faculty who have tried to answer the question of what knowledge or skills their students should demonstrate upon exiting the course or program. Course-level outcomes, developed by faculty from throughout the district who teach a subject, are included in the course outlines that are approved by the Curriculum Committee.

Degree and certificate-level outcomes are also developed by faculty who teach the courses included in our degrees and certificates, but they reflect goals and skills that students should attain in the process of successfully completing these programs of study. While each course in a degree or certificate need not contribute knowledge related to every outcome, they cumulatively should enable students to achieve these outcomes. Learning outcomes inform our curriculum, teaching, and assessment.

## 17. Who chooses lead instructors for assessment in the department/discipline?

This is a departmental decision. Typically a Dean or Director would make this decision.

## 18. What is a program outcome?

Think about what your students will need to be able to DO “out there” (in the rest of life) that *you* are responsible for in *your* program?” (Stiehl & Lewchuk, 2002)

When developing your program outcomes, encompass several *levels of learning* through the learning sequence of the program. One program outcome will encompass more than one course. Look at the big picture, not tiny details of skills that could be checked off.

## 19. What’s the difference between an objective and an outcome?

Objectives describe skills, tools, and content that enables a student to achieve the outcome. Objectives are teacher-centered. Objectives may be impossible to assess because they can often be numerous, specific, and detailed.

Outcomes describe the overarching product(s) that students will generate by applying skills, tools, and content. Outcomes are learner-centered. Outcomes require the use of higher-level thinking such as analysis, synthesis, and evaluation in order to demonstrate the student’s ability to apply the skills, tools, and content in authentic contexts for learning.

Outcomes can be assessed. They are products that can be observed as a behavior, attitude, skill, or discrete usable knowledgeable and can be measured against criteria (rubric, checklist, Likert scale, survey).

Adapted from  
COLUMBUS STATE COMMUNITY COLLEGE  
CENTER FOR TEACHING & LEARNING INNOVATION

# Assessment Methods

## Indirect vs. Direct Assessment Methods

The examples of direct and indirect methods of assessment below are adapted from Saddleback College's "Guide to Developing and Assessing Student Learning Outcomes and Administrative/Service Unit Outcomes".

Examples of **direct** methods of assessment include:

**Capstone Course Evaluation:** Capstone courses integrate knowledge, concepts, and skills associated with an entire sequence of study in a program. This method of assessment is unique because the courses themselves become the instruments for assessing student teaching and learning. Evaluation of students' work in these courses is used as a means of assessing student outcomes. For academic units where a single capstone course is not feasible or desirable, a department may designate a small group of courses where competencies of completing majors will be measured.

**Classroom Assessment:** Often designed for individual faculty who wish to improve their teaching of a specific course but can also be used on the program level.

**Collective Portfolios:** Faculty assembles samples of student work from various classes and use the "collective" to assess specific program learning outcomes.

**Commercially Produced or Standardized Tests:** Commercially generated or standardized tests are used to measure student competencies under controlled conditions. Tests are developed and measured nationally to determine the level of learning that students have acquired in specific fields of study. For example, nationally standardized multiple-choice tests are widely used and assist departments in determining programmatic strengths and weaknesses when compared to other programs and national data.

**Embedded Questions on Assignments or Exams:** Questions related to program learning outcomes can be embedded within course assignments or exams. For example, all sections of "research methods" could include a question or set of questions relating to your program SLOs. Faculty grade the exams as usual and then copy exam questions that are linked to the program SLOs for analysis. The findings are reported as an aggregate.

**Locally Developed Exit Exams:** Faculty can create an objective exam for graduating students that is aligned with the program SLOs. Performance expectations should be delineated prior to obtaining results.

**Pre-Test/Post-Test Evaluations:** Pre-test/post-test assessment is a method used by academic units where locally developed tests and examinations are administered at the beginning and at the end of courses or academic programs. These test results enable faculty to monitor student progression and learning throughout prescribed periods of time. The results are often useful for determining where skills and knowledge deficiencies exist and most frequently develop.

**Observations:** Observations of any behavior such as student presentations or students working in the library can be used for assessment. Observations can be recorded as a narrative or in a highly structured format, such as a checklist, and they should be focused on specific program SLOs.

**Scoring Rubrics:** Rubrics can be used to score any product or performance such as essays, portfolios, recitals, oral exams, etc. A detailed scoring rubric that delineates criteria used to discriminate among levels is developed and used for scoring. Generally two raters are used to review each product and a third rater is used to resolve discrepancies.

**Transfer Records:** For community colleges, the data on transfer student success in upper division courses is extremely valuable. Cal-PASS, a system of data sharing between all the systems of education in California, may be helpful.

**Videotape or Audiotape Evaluations:** Videotapes and audiotapes have been used by faculty as a kind of pre-test/post-test assessment of student skills and knowledge. Disciplines, such as theatre, music, art, and communication, which have experienced difficulty in using some of the other assessment methods have had significant success in utilizing videotapes and audiotapes as assessment tools.

Examples of **indirect** methods of assessment include:

**Alumni Surveys:** Surveying of alumni is a useful assessment tool for generating data about student preparation for professional work, program satisfaction, and curriculum relevancy. As an assessment supplement, alumni surveying provides departments with a variety of information that can highlight complete data.

**Employer Surveys:** Employer surveys can provide information about the curriculum, programs, and students that other forms of assessment cannot produce. Through surveys, departments traditionally seek employer satisfaction levels with the abilities and skills of recent graduates. Employers also assess programmatic characteristics by addressing the success of students in a continuously evolving job market.

**External Reviewers:** Peer review of academic programs is a widely accepted method for assessing curricular sequences, course development and delivery, and the effectiveness of faculty. Using external reviewers is a useful way of analyzing whether student achievement correlates appropriately with departmental goals and objectives.

**Student Exit Interviews/Surveys:** Students leaving the college are interviewed or surveyed to obtain feedback. Data obtained can address strengths and weaknesses of the program and/or assess relevant concepts, theories or skills.

## Qualitative vs. Quantitative Assessment Methods

Data collected through assessment activities should be both qualitative and quantitative. **Quantitative** data use numbers (or can be converted to numbers for data analysis); whereas **Qualitative** data use words and are generally reported as a narrative. For quantitative data, the same information is usually collected from each participant in exactly the same way, and different responses are translated into a series of numbers. Qualitative data emphasize flexibility in data collection and focus on understanding processes and events, rather than precisely measuring them. Quantitative data are generally assumed to be more objective; whereas qualitative data might provide richer information about recurrent themes and trends. Each type has unique advantages; using a combination of both can provide a more robust snapshot of student learning.

These distinctions can easily be seen in questionnaires with closed-ended (quantitative) versus open-ended (qualitative) questions.

### Example of a closed-ended question:

*How well did your program prepare you for a career in early childhood education? (Circle one number on the scale below.)*

|            |          |            |              |
|------------|----------|------------|--------------|
| Not at all | Somewhat | Moderately | A great deal |
| 0          | 1        | 2          | 3            |

**Closed-ended** questions limit the responses a person can make and either use a number scale in the question or later translate responses into numbers. Results from closed-ended questions can be reported as average scores on each question (including standard deviations or range of scores to help reviewers to get a more complete picture), and these results can easily be presented in tables and graphs.

### Example of an open-ended question:

*Describe how your program prepared you for a career in forestry?*

**Open-ended** questions allow people to give any answer they wish and to go into greater detail, but they are more difficult to analyze and report objectively (although computer analysis programs are becoming available for qualitative data). Typically, for open-ended questions, various types of answers can be described in a narrative or frequencies of responses containing the same or similar themes can be counted (preferably by multiple raters) and reported as simple frequencies or percentages. It is usually not as helpful (even though readers find it interesting) to report all responses verbatim. It is better if the data summary and interpretation come from the program itself, rather than having reviewers try to interpret the meaning of a long list of open-ended survey comments.

### Notes about Qualitative Assessment

Qualitative assessment is a legitimate form of assessment, which should be seriously considered in any departmental decision regarding the choice of means of assessment. Qualitative means of assessment describe those evaluations in which a holistic judgment concerning a subject is made.

Some other examples include: portfolio reviews, public performances, or oral examinations.

Some limitations include:

- Difficulty in identifying specific criteria for assessment and standards for success
- Unless external evaluators are used, those conducting the evaluations are frequently the same faculty who taught the students, reducing objectivity
- Inter-rater reliability is inconsistent over time, which can only be solved through thorough training of evaluators using identical procedures each year

*Adapted from Oakland University Guidelines for Assessment*

## **Student Learning Outcomes Implementation Steps:**

The following is a logical order for implementation activities related to student learning outcomes:

- Identify intended student learning outcomes
- Develop and implement appropriate assessment procedures to determine accomplishments of the identified student learning outcomes
- Demonstrate use of assessment results to improve student learning or departmental operations

No institution or department has the resources or time to continually assess all possible aspects of each program. Given this limitation, priorities for the assessment effort must be set to avoid measuring the meaningless. Hence, it is logical to begin or focus the department's assessment efforts on those expectations for all students based on individual need.

## **Tips for Developing Student Learning Outcomes:**

Three characteristics of good learning outcomes according to President Keith Snow-Flamer:

- The specified action by the learners must be important and have some meaning.
- The specified action by the learners must be measurable (since outcomes in form planning and organizational change) and can be assessed.
- The outcome should link in some way to the Student Support Service's learning outcomes.

**HINT:** It's sometimes easier to start backwards by thinking about the major assessments you use currently. These would be the products or demonstrations of your out- comes. Make a list of your major activities related to these services. Then try to describe in one sentence what the students are being asked to demonstrate.

More things to think about when developing SLOs:

- Focus on outcomes, not processes. Don't address what was taught or presented, but address the observable outcome you expect to see in the student. Think about the knowledge, skills, and attitudes you expect from students who complete program activities.
- Make sure SLOs are written as outcomes rather than objectives (outcomes indicate the big picture rather than nuts and bolts associated with objectives, student learning outcomes address student competency rather than content coverage). Focus on the substance of the outcomes, not just the means for their expression (i.e. how they are measured).
- Typically, between three and five student learning outcomes for each program is sufficient.
- Use active verbs in describing student learning outcomes. Active verbs are easier to measure. For instance, if you want students to understand how to correctly use the Academic Support Center – using the word “understand” is not measurable. Instead try to imagine the outcome – students will “create” and “produce” quality resumes at the Career

and Transfer Center (or describe, classify, distinguish, explain, interpret, compose, perform, demonstrate, etc.)

- For pragmatic reasons, remember that at least one means of assessment will need to be developed for each intended educational outcome. It is far better to limit the number of student learning outcomes, conduct Meaningful assessment of student support services, and use assessment results to improve student learning (Nichols and Nichols, p. 20).
- How to determine whether the SLO is appropriate: Does it represent a fundamental outcome of the program? Is it the outcome, or a series of sequenced activities? Does it represent collegiate level work?
- The accomplishment of most statements of intended educational (student learning) outcomes should be ascertainable/measurable.
- “Measurable” doesn’t necessarily need to mean that it is quantifiable, precluding qualitative judgments. “Measurable” can include a general judgment of whether students know, think, and can do most of what is intended for them.
- Be careful when describing attitudes in a learning outcome, as they are hard to assess. Ask yourself if the attitude is crucial to success in your program or class.
- Criteria set for student learning outcomes should be set realistically but should also represent a reasonable challenge both for students and faculty
- Whenever feasible, set not only primary (overall), but secondary (detailed) levels as benchmarks or criteria for success at the degree or program level (e.g. average score of graduates on a standard exam will be at or near the 50<sup>th</sup> percentile and no sub-scale score will be below the 30<sup>th</sup> percentile)
- Write student learning outcomes in language that anyone reading it will understand.

# Academic (Course & Program) Assessment

## Introduction

The 2014 ACCJC Accreditation Standards require that student learning outcomes (SLOs) be assessed at the course, program, certificate, and degree level (ACCJC Standard II.A.2.f, p. 7).

Therefore, in addition to designing an assessment process for the SLOs for each certificate and degree related to a program, faculty must design at least one assessment process for the SLOs at the course level. In order to efficiently assess SLOs at these various levels, it is sometimes appropriate and useful to use a course-embedded assessment process, or to use a process that matches one developed for degrees and certificates so that both levels can be evaluated at the same time.

This section of the handbook includes explanations and examples for mapping course level outcomes to program level outcomes, and using rubrics for assessment.

## Program Mapping

The objective of program to course SLO mapping is to show how course level SLOs (CLOs) feed into and support program level SLOs (PLOs) and to provide a method for PLOs to be assessed through the use of CLO data. Many PLOs are best assessed through looking at a whether or not students attained a CLO in a capstone course or advanced course within the degree. Therefore, it is not expected that every CLO in every course within a degree will map to a PLO.

Subject matter experts within each degree or certificate should develop the CLO-PLO mapping for their area after appropriate dialogue. As the College has become proficient at assessment, it has become best practice to design CLOs to directly refer to the PLOs they support when curriculum comes up for its regular review. Below is an example of program mapping in the Assessment Tool for the Physics AS-T Degree:



### Outcome Mapping (View)

[Edit Mappings](#) - Outcome mappings can be edited here following sufficient program dialogue.

[View Reports](#) - Review degree/certificate/program level reports here.

This page renders best using Internet Explorer

Physics, Associate of Science for Transfer

| PLO #   | Outcome  |   |  |     |               |         |   |  |         |   |  |         |   |                                      |
|---------|--|---|--|-----|---------------|---------|---|--|---------|---|--|---------|---|--------------------------------------|
| 1       | Apply methods of scientific inquiry to investigate questions, and explain the limitations of this approach.  | 3 course outcomes mapped. <sup>⊕</sup>  |  |     |               |         |   |  |         |   |  |         |   |                                      |
|         | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Course</th> <th style="width: 65%;">SLO</th> <th style="width: 20%;">Last Assessed</th> </tr> </thead> <tbody> <tr> <td>PHYS-4A</td> <td>3 Analyze a physical situation with multiple forces acting on a point mass or extended object using concepts of work and energy.</td> <td style="text-align: center;">2014-2015<br/><a href="#">View Report</a></td> </tr> <tr> <td>PHYS-4B</td> <td>3 Use dynamic electric and magnetic field principles to analyze AC circuits and electromagnetic waves, including power dissipation, energy, and pressure.</td> <td style="text-align: center;">2012-2013<br/><a href="#">View Report</a></td> </tr> <tr> <td>PHYS-4C</td> <td>4 Apply basic concepts of quantum mechanics to analyze basic physical setups, including a particle in a box and simple atomic models.</td> <td style="text-align: center;">2017S<br/><a href="#">View Report</a></td> </tr> </tbody> </table>  |   | Course                                   | SLO | Last Assessed | PHYS-4A | 3 Analyze a physical situation with multiple forces acting on a point mass or extended object using concepts of work and energy.  | 2014-2015<br><a href="#">View Report</a> | PHYS-4B | 3 Use dynamic electric and magnetic field principles to analyze AC circuits and electromagnetic waves, including power dissipation, energy, and pressure.                                     | 2012-2013<br><a href="#">View Report</a> | PHYS-4C | 4 Apply basic concepts of quantum mechanics to analyze basic physical setups, including a particle in a box and simple atomic models.   | 2017S<br><a href="#">View Report</a> |
|         | Course   | SLO   | Last Assessed                            |     |               |         |   |  |         |   |  |         |   |                                      |
|         | PHYS-4A  | 3 Analyze a physical situation with multiple forces acting on a point mass or extended object using concepts of work and energy.  | 2014-2015<br><a href="#">View Report</a> |     |               |         |   |  |         |   |  |         |   |                                      |
| PHYS-4B | 3 Use dynamic electric and magnetic field principles to analyze AC circuits and electromagnetic waves, including power dissipation, energy, and pressure.  | 2012-2013<br><a href="#">View Report</a>  |  |     |               |         |   |  |         |   |  |         |   |                                      |
| PHYS-4C | 4 Apply basic concepts of quantum mechanics to analyze basic physical setups, including a particle in a box and simple atomic models.  | 2017S<br><a href="#">View Report</a>  |  |     |               |         |   |  |         |   |  |         |   |                                      |
| 2       | Perform experiments, collect and analyze data, evaluate sources of uncertainty, and determine if an experiment correctly verifies theory within expected errors.   | 3 course outcomes mapped. <sup>⊕</sup>  |  |     |               |         |   |  |         |   |  |         |   |                                      |
|         | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Course</th> <th style="width: 65%;">SLO</th> <th style="width: 20%;">Last Assessed</th> </tr> </thead> <tbody> <tr> <td>PHYS-4A</td> <td>4 Analyze real-world experimental data, including appropriate use of error propagation, units and significant figures and relate the results to theoretical concepts learned in the lecture portion of this course.</td> <td style="text-align: center;">2014-2015<br/><a href="#">View Report</a></td> </tr> <tr> <td>PHYS-4B</td> <td>4 Proficiently work with electrical equipment to set up experiments and build simple circuits, correctly take electrical measurements using multimeters and oscilloscopes, record the results</td> <td style="text-align: center;">2012-2013<br/><a href="#">View Report</a></td> </tr> <tr> <td>PHYS-4C</td> <td>5 Analyze real-world experimental data, recording with appropriate units and significant figures, and relate results to theoretical concepts learned in the lecture portion of this course.</td> <td style="text-align: center;">2017S<br/><a href="#">View Report</a></td> </tr> </tbody> </table> |   | Course                                   | SLO | Last Assessed | PHYS-4A | 4 Analyze real-world experimental data, including appropriate use of error propagation, units and significant figures and relate the results to theoretical concepts learned in the lecture portion of this course. | 2014-2015<br><a href="#">View Report</a> | PHYS-4B | 4 Proficiently work with electrical equipment to set up experiments and build simple circuits, correctly take electrical measurements using multimeters and oscilloscopes, record the results | 2012-2013<br><a href="#">View Report</a> | PHYS-4C | 5 Analyze real-world experimental data, recording with appropriate units and significant figures, and relate results to theoretical concepts learned in the lecture portion of this course. | 2017S<br><a href="#">View Report</a> |
|         | Course   | SLO   | Last Assessed                            |     |               |         |   |  |         |   |  |         |   |                                      |
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| PHYS-4B | 4 Proficiently work with electrical equipment to set up experiments and build simple circuits, correctly take electrical measurements using multimeters and oscilloscopes, record the results  | 2012-2013<br><a href="#">View Report</a>  |  |     |               |         |   |  |         |   |  |         |   |                                      |
| PHYS-4C | 5 Analyze real-world experimental data, recording with appropriate units and significant figures, and relate results to theoretical concepts learned in the lecture portion of this course.  | 2017S<br><a href="#">View Report</a>  |  |     |               |         |   |  |         |   |  |         |   |                                      |
| 3       | Use concepts from physics theories to analyze and describe natural phenomenon.   | 8 course outcomes mapped. <sup>⊕</sup>  |  |     |               |         |   |  |         |   |  |         |   |                                      |
| 4       | Use physical laws, theories, and appropriate mathematics to make quantitative predictions.   | 9 course outcomes mapped. <sup>⊕</sup>  |  |     |               |         |   |  |         |   |  |         |   |                                      |

[Return to Assessment Home](#)

## Sample Outcomes

### Examples of Course Learning Outcomes (CLOs):

|                    | Course                                    | Example of a Course Learning Outcome  |
|--------------------|---|---|
| Arts & Humanities  | ANTH-5<br>Great Archeological Discoveries | Analyze and defend viewpoints on controversial archaeological concepts.   |
|                    | ART-4<br>Art Appreciation                 | Evaluate and critique works of art and architecture based on formal elements and principles of design and employing appropriate art historical terminology.     |
|                    | HIST-7<br>Hist. of Modern Asia            | Apply secondary and/or primary source material to construct written and oral, logical, historical arguments.  |
| CTE                | AG-21<br>Plant Propagation/<br>Production | Identify, select, use, and maintain common propagation parent stock, nursery tools and equipment.   |
|                    | AT-12<br>Auto Braking Systems             | Diagnose and repair hydraulic systems.  |
|                    | CT-78A<br>Residential Wiring I            | Design an electrical wiring diagram for a single family residence.  |
| MSBSS              | BIOL-5<br>General Botany                  | Use the formal methodologies of observation and scientific method as inquiry-based laboratory tools to critically explain observable phenomena.                 |
|                    | GEOL-1<br>Physical Geology                | Describe the basic elements of plate tectonic theory including how internal processes help shape the Earth.   |
|                    | PHYS-2A<br>General Physics I              | Predict the motion of objects in one and two dimensions with constant acceleration and for objects with more than one force acting on them using Newton's laws. |
| Health Occupations | DA-156<br>Dental Assisting Fundamentals   | Demonstrate anticipation, organization, communication, teamwork, and the ability to follow directions.  |
|                    | HO-15<br>Nutrition                        | Identify nutrients in foods and explain the digestion, absorption and metabolism of these nutrients.  |
| Athletics          | PE-17<br>Aerobic Kickboxing               | Display an improved level of balance, coordination, timing, and body alignment.   |

## Examples of Program Learning Outcomes (PLOs):

|                    | Program   | Example of a Program Learning Outcome  |
|--------------------|---|--|
| Arts & Humanities  | English AA-T Degree                                 | Research and apply source material to generate written arguments in response to diverse kinds of complex texts.  |
|                    | Liberal Arts: Fine Arts AA Degree                   | Demonstrate progressive technical mastery of one or more artistic mediums.   |
|                    | Philosophy AA-T Degree                              | Explain a variety of philosophical perspectives and positions and their relationships to their cultural, historical, and thematic contexts.  |
| CTE                | Business, General AS Degree                         | Select and apply analytical and technological tools as they relate to personal, business, and social decisions.  |
|                    | Early Childhood Education AS-T Degree               | Articulate an understanding of typical and atypical of development of young children from birth through age eight including the health, safety and nutritional aspects of development.   |
|                    | Manufacturing Technology Cert. of Achievement       | Determine the best way to manufacture a given part, and produce it utilizing the available tools and equipment.  |
| MSBSS              | Liberal Arts: Behavioral & Social Science AA Degree | Create arguments that demonstrate knowledge of primary and secondary source information.   |
|                    | Mathematics AS-T Degree                             | Students should be able to use technology to visualize functions, explore mathematical concepts, and solve problems; students should be able to use numerical, graphical, symbolic, and verbal representations to communicate with others in both written and oral form. |
|                    | Psychology AA-T Degree                              | Apply psychological concepts, theoretical perspectives, empirical findings, and historical trends to questions and issues on a societal and personal level.  |
| Health Occupations | North Coast Paramedic Cert. of Achievement          | Manage the scene of an emergency safely and efficiently.   |
|                    | Registered Nursing AS Degree                        | Apply knowledge from general education coursework in biologic sciences, social sciences, communication and mathematics when understanding and providing safe quality care to patients and their families.  |
| Athletic           | Kinesiology AA-T Degree                             | Explain the anatomical structure and the physiological mechanism of the human body.  |

# Student Support Services Assessment

## Student Learning Outcomes in Student Support Services

The term *Student Learning Outcome* describes what students will be able to think (attitudinal), know (cognitive), or do (behavioral) when they've completed a given educational program and/or services.

### What is meant by Student Learning Outcomes related to support services?

Think about what you want students to know or do as a result of interacting with your services or at the end of a learning unit (such as orientation/advising sessions).

In the **attitudinal** domain, your expectations of students might be:

- Feeling confident about the college environment
- Fitting in socially
- Feeling competent
- Feeling that college is friendly
- Feeling that college improves their lives

In the **knowledge** domain, your knowledge expectations of students might be:

- Regulatory knowledge: requirements for matriculation, graduation, and transfer (e.g., knowledge about Math and English requirements, transferability, etc.)
- Procedural knowledge: knowing how to get stuff done (e.g., arrange transportation; scheduling; research; adding and dropping classes; negotiating; reading and comprehending policies; using the phone to register or access services; using the web to reference the schedules, catalog, or other information, etc..)
- Spatial knowledge: students' mental maps, such as where to go on campus to access services (e.g., where to go to pay fees, to get reserve books, to get book vouchers, etc.)

In the **behavioral** domain, your knowledge expectations of students might be:

- Following student conduct codes
- Participating in student organizations
- Persisting from one semester to another through to program completion.

If you think your program or service has no student learning outcomes, consider whether students would be able to attain the desired level of education effectiveness related to learning or achievement without your program or service.

- Consider that almost every CR student, no matter how many classes s/he takes, must apply for admission, seek counseling and advising, go through assessment testing and orientation, visit health services (if needed), purchase textbooks, dine at the cafeteria, utilize parking, discuss career and transfer issues at the career or transfer center, and apply for financial aid.
- Consider that students rely on these services to continue their study, and these interactions influence their learning experiences.
- Consider that close to a quarter of the reasons students drop out of college are related to counseling, admissions and registration, and financial aid issues.

### Examples of Learning Outcomes for Student Services:

| Service Area          | Example of a Student Learning Outcome   |
|-----------------------|---|
| Athletics             | Student athletes will demonstrate an understanding of minimum eligibility requirements.   |
| Enrollment Services   | Students will demonstrate an understanding that all fees are due at the time of registration and the resulting consequences of unpaid balances.   |
| Counseling & Advising | Students will indicate an understanding of the components of their academic program by selecting an educational goal and completing a Student Education Plan.   |
| DSPS                  | DSPS students will experience greater persistence when co-enrolled in a DSPS special course.  |
| Library               | Students will note satisfaction with access to library resources; to include the building hours and study rooms, course reserves and check out of materials.  |
| EOPS                  | As a result of academic advising and the collaborative development of a Student Educational Plan, EOPS students will be able to identify the courses and course sequences required to reach their educational goal. |
| Veterans Resources    | Veterans Program students will understand how to access applicable Educational Benefits.  |

## Appendix A: Glossary of Assessment Terms

### **Accountability**

The obligation placed on an educational institute by public officials, employers, and taxpayers for school officials to demonstrate that money invested in education has led to measurable learning. Accountability is often viewed as an important factor in education reform. An assessment system connected to accountability can help identify needs so that resources can be equitably distributed.

### **Accreditation**

Official recognition that an institution meets required standards established by an accreditation body authorized to operate by the U.S. Department of Education. College of the Redwoods is accredited by the Accrediting Commission for Community and Junior Colleges (ACCJC).

### **Achievement Test**

A standardized test designed to efficiently measure the amount of knowledge and/or skill a person has acquired, usually as a result of classroom instruction. Such testing produces a statistical profile used as a measurement to evaluate student learning in comparison with a standard or norm.

### **Affective**

The affective domain describes learning objectives that emphasize a feeling tone, an emotion, or a degree of acceptance or rejection. Affective objectives vary from simple attention to selected phenomena to complex but internally consistent qualities of character and conscience. They include concepts being undertaken, gained or realized through an active process of engagement with some problem or experiment. Students are encouraged to not just receive information at the bottom of the affective hierarchy. We'd like for them to respond to what they learn, to value it, to organize it and maybe even to characterize themselves as students or professionals in their fields of study.

### **Alternative Assessment**

Alternatives to traditional, standardized, norm- or criterion-referenced traditional paper and pencil testing. An alternative assessment might require students to answer an open ended question, work out a solution to a problem, demonstrate skill, or in some way produce work rather than select an answer from choices on a sheet of paper. Portfolios and instructor observation of students are also alternative forms of assessment.

### **Analytic Scoring**

A type of rubric scoring that separates the whole into categories of criteria that are examined one at a time. Student writing, for example, might be scored on the basis of grammar, organization, and clarity of ideas. Useful as a diagnostic tool. An analytic scale is useful when there are several dimensions on which the work will be evaluated. (See **Rubric.**)

### **Aptitude Test**

A test intended to measure the test-taker's innate ability to learn; given before receiving instruction.

### **Artifact**

A sample of student work that is scored according to an established rubric for assessment purposes.

## **Assessment**

Assessment is the cycle of analyzing data and evaluating the results to inform improvements to the teaching and learning 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' (Angelo, 1995)

## **Assessment Literacy**

The possession of knowledge about the basic principles of sound assessment practice, including terminology, the development and use of assessment methodologies and techniques, familiarity with standards of quality in assessment. Increasingly, familiarity with alternatives to traditional measurements of learning.

## **Assessment Task**

An illustrative task or performance opportunity that closely targets defined instructional aims, allowing students to demonstrate their progress and capabilities.

## **Benchmark**

Student performance standards; i.e., the level(s) of student competence in a content area. An actual measurement of group performance against an established standard at defined points along the path toward the standard. Subsequent measurements of group performance use the benchmarks to measure progress toward achievement.

## **Bloom's Taxonomy of Cognitive Objectives**

Benjamin Bloom originated this taxonomy for categorizing level of abstraction of questions that commonly occur in educational settings. The taxonomy provides a useful structure in which to categorize test questions, since instructors will characteristically ask questions within particular levels. There are six levels arranged in order of increasing complexity (1=low, 6=high):

1. Knowledge: Recalling or remembering information without necessarily understanding it. Includes behaviors such as describing, listing, identifying, and labeling.
2. Comprehension: Understanding learned material and includes behaviors such as explaining, discussing, and interpreting.
3. Application: The ability to put ideas and concepts to work in solving problems. It includes behaviors such as demonstrating, showing, and making use of information.
4. Analysis: Breaking down information into its component parts to see interrelationships and ideas. Related behaviors include differentiating, comparing, and categorizing.
5. Synthesis: The ability to put parts together to form something original. It involves using creativity to compose or design something new.
6. Evaluation: Judging the value of evidence based on definite criteria. Behaviors related to evaluation include: concluding, criticizing, prioritizing, and recommending.

For a more detailed list of verbs in Bloom's Taxonomy, see Appendix B.

**Capstone Assessment**

Assessment of outcomes structured into learning experiences occurring at the end of a program. The experiences involve demonstration of a comprehensive range of program outcomes through some type of product or performance. The outcomes may be those of the major and of the general education program or of the major only. (Palomba & Banta, 1999)

**Cohort**

A group whose progress is followed by means of measurements at different points in time.

**Concept**

An abstract, general notion; a heading that characterizes a set of behaviors and/or beliefs.

**Criteria/Standards**

Performance descriptors that indicate how well students have met expectations of what they should be able to think, know or do. They are descriptive benchmarks against which performance is judged. These criteria or standards may be described in varying gradients of success as in rubrics or in grades. Often they are stated in terms of percentages, percentiles or other quantitative measures (Nichols, 2000)

**Direct Assessment Methods**

These methods involve students' display of knowledge and skills (e.g. text results, written assignments, presentations, classroom assignments) resulting from learning experience in the class/program. (Palomba & Banta, 1999)

**Formative Assessment**

Assessment conducted during a performance/course/program with the purpose of providing feedback that can be used to modify, shape, and improve a performance/course/program. (Palomba & Banta, 1999)

**Indirect Assessment Methods**

Assessment methods that involve perceptions of learning rather than actual demonstrations of outcome achievement (e.g. alumni surveys, employer surveys, exit interviews).

**Measurement**

Quantitative description of student learning and qualitative description of student attitude.

**Metacognition**

The knowledge of one's own thinking processes and strategies, and the ability to consciously reflect and act on the knowledge of cognition to modify those processes and strategies.

**Mission**

An holistic vision of the values and philosophy of a department, program, unit or institution. - (Palomba & Banta, 1999; Allen, 2004)

**Multidimensional Assessment**

Assessment that gathers information about a broad spectrum of abilities and skills.

### **On-Demand Assessment**

An assessment process that takes place as a scheduled event outside the normal routine. An attempt to summarize what students have learned that is not embedded in classroom activity.

### **Outcomes**

An operationally defined educational goal, usually a culminating activity, product, or performance that can be measured.

### **Performance-Based Assessment**

Direct, systematic observation and rating of student performance of an educational objective, often an ongoing observation over a period of time, and typically involving the creation of products. The assessment may be a continuing interaction between faculty and student and should ideally be part of the learning process. The assessment should be a real-world performance with relevance to the student and learning community. Assessment of the performance is done using a rubric, or analytic scoring guide to aid in objectivity. Performance-based assessment is a test of the ability to apply knowledge in a real-life setting. It is also performance of exemplary tasks in the demonstration of intellectual ability. Evaluation of the product of a learning experience can also be used to evaluate the effectiveness of teaching methods.

### **Performance Criteria**

The standards by which student performance is evaluated. Performance criteria help assessors maintain objectivity and provide students with important information about expectations, giving them a target or goal to strive for.

### **Portfolio**

A systematic and organized collection of a student's work that exhibits to others the direct evidence of a student's efforts, achievements, and progress over a period of time. The collection should involve the student in selection of its contents, and should include information about the performance criteria, the rubric or criteria for judging merit, and evidence of student self-reflection or evaluation. It should include representative work, providing a documentation of the learner's performance and a basis for evaluation of the student's progress. Portfolios may include a variety of demonstrations of learning and have been gathered in the form of a physical collection of materials, videos, digital files, reflective journals, etc.

### **Qualitative Methods of Assessment**

Methods that rely on descriptions rather than numbers. Examples: Ethnographic field studies, logs, journals, participant observation, and open-ended questions on interviews and surveys.

### **Quantitative Methods of Assessment**

Methods that rely on numerical scores or ratings. Examples: Surveys, Inventories, Institutional/departmental data, departmental/course-level exams (locally constructed, standardized, etc.).

**Rating Scale**

A scale based on descriptive words or phrases that indicate performance levels. Qualities of a performance are described (e.g., advanced, intermediate, novice) in order to designate a level of achievement. The scale may be used with rubrics or descriptions of each level of performance.

**Reliability**

The measure of consistency for an assessment instrument. The instrument should yield similar results over time with similar populations in similar circumstances.

**Rubric**

In general, a rubric is a scoring guide used in subjective assessments. A rubric implies that a rule defining the criteria of an assessment system is followed in evaluation. A rubric can be an explicit description of performance characteristics corresponding to a point on a rating scale. A scoring rubric makes explicit expected qualities of performance on a rating scale or the definition of a single scoring point on a scale.

**Scale**

A classification tool or counting system designed to indicate and measure the degree to which an event or behavior has occurred.

**Self-Assessment**

A process in which a student engages in a systematic review of their performance, usually for the purpose of improving future performance. May involve comparison with standard, established criteria. May involve critiquing one's own work or may be a simple description of the performance.

**Standards**

Agreed upon values used to measure the quality of student performance, instructional methods, curriculum, etc.

## Appendix B: Bloom's Taxonomy

| Knowledge<br>(Remember) | Comprehension<br>(Understand) | Application<br>(Apply) | Analysis<br>(Analyze) | Synthesis<br>(Evaluate) | Evaluation<br>(Create) |
|-------------------------|-------------------------------|------------------------|-----------------------|-------------------------|------------------------|
| Count                   | Associate                     | Add                    | Analyze               | Arrange                 | Appraise               |
| Define                  | Classify                      | Calculate              | Application           | Assemble                | Arbitrate              |
| Describe                | Compute                       | Change                 | Appraise              | Categorize              | Argue                  |
| Draw                    | Contrast                      | Choose                 | Breakdown             | Collect                 | Assess                 |
| Label                   | Convert                       | Classify               | Calculate             | Combine                 | Attach                 |
| List                    | Defend                        | Complete               | Categorize            | Compile                 | Award                  |
| Match                   | Describe                      | Compute                | Combine               | Compose                 | Choose                 |
| Name                    | Differentiate                 | Demonstrate            | Compare               | Construct               | Compare                |
| Outline                 | Discuss                       | Discover               | Connect               | Create                  | Conclude               |
| Point                   | Distinguish                   | Divide                 | Contrast              | Design                  | Contrast               |
| Quote                   | Estimate                      | Employ                 | Criticize             | Develop                 | Convince               |
| Read                    | Explain                       | Examine                | Design                | Devise                  | Core                   |
| Recall                  | Extend                        | Experiment             | Detect                | Drive                   | Criticize              |
| Recite                  | Extrapolate                   | Graph                  | Diagram               | Explain                 | Critique               |
| Recognize               | Generalize                    | Interpolate            | Differentiate         | Formulate               | Decide                 |
| Record                  | Give examples                 | Manipulate             | Discriminate          | Generalize              | Defend                 |
| Repeat                  | Infer                         | Modify                 | Distinguish           | Generate                | Determine              |
| Reproduce               | Identify                      | Operate                | Examine               | Group                   | Discriminate           |
| Select                  | Indicate                      | Perform                | Experiment            | Integrate               | Evaluate               |
| State                   | Interpret                     | Practice               | Explain               | Invent                  | Explain                |
| Write                   | Locate                        | Prepare                | Infer                 | Formulate               | Grade                  |
| Memorize                | Paraphrase                    | Produce                | Outline               | Manage                  | Interpret              |
| Arrange                 | Predict                       | Relate                 | Point out             | Modify                  | Judge                  |
| Duplicate               | Report                        | Research               | Question              | Order                   | Justify                |
| Order                   | Restate                       | Organize               | Relate                | Organize                | Measure                |
| Relate                  | Review                        | Schedule               | Select                | Plan                    | Predict                |
| Tabulate                | Rewrite                       | Service                | Separate              | Prepare                 | Prioritize             |
|                         | Translate                     | Show                   | Subdivide             | Prescribe               | Rank                   |
|                         |                               | Sketch                 | Test                  | Propose                 | Rate                   |
|                         |                               | Solve                  | Utilize               | Rearrange               | Recommend              |
|                         |                               | Subtract               |                       | Reconstruct             | Referee                |
|                         |                               | Translate              |                       | Related                 | Reject                 |
|                         |                               | Troubleshoot           |                       | Reorganize              | Select                 |
|                         |                               | Write                  |                       | Revise                  | Summarize              |
|                         |                               |                        |                       | Rewrite                 | Support                |
|                         |                               |                        |                       | Setup                   | Test                   |
|                         |                               |                        |                       | Specify                 | Value                  |
|                         |                               |                        |                       | Substitute              |                        |
|                         |                               |                        |                       | Summarize               |                        |
|                         |                               |                        |                       | Transform               |                        |

| Category  | Examples and Key Words   |
|---|--|
| <p><b>Knowledge:</b> Recall data or information.</p>  | <p><b>Examples:</b> Recites a policy. Quotes prices from memory to a customer. Knows the safety rules.</p> <p><b>Key Words:</b> defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.</p>  |
| <p><b>Comprehension:</b> Understand the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words.</p>               | <p><b>Examples:</b> Rewrites the principles of test writing. Explain in one's own words the steps for performing a complex task. Translates an equation into a computer spreadsheet.</p> <p><b>Key Words:</b> comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, interprets, paraphrases, predicts, rewrites, summarizes, translate.</p>  |
| <p><b>Application:</b> Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the work place.</p> | <p><b>Examples:</b> Uses a manual to calculate an employee's vacation time. Applies laws of statistics to evaluate the reliability of a written test.</p> <p><b>Key Words:</b> applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.</p>   |
| <p><b>Analysis:</b> Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.</p>     | <p><b>Examples:</b> Troubleshoots a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.</p> <p><b>Key Words:</b> analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates.</p>                                       |
| <p><b>Synthesis:</b> Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.</p>             | <p><b>Examples:</b> Writes a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and processes to improve the outcome.</p> <p><b>Key Words:</b> categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.</p> |
| <p><b>Evaluation:</b> Make judgments about the value of ideas or materials.</p>   | <p><b>Examples:</b> Selects the most effective solution. Hire the most qualified candidate. Explains and justifies a new budget.</p> <p><b>Key Words:</b> appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports.</p>  |

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| <p><b>Receiving Phenomena:</b><br/>Awareness, willingness to hear, selected attention.</p>   | <p><b>Examples:</b> Listens to others with respect. Listen for and remember the names of newly introduced people.</p> <p><b>Key Words:</b> asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses.</p>  |
| <p><b>Responding to Phenomena:</b><br/>Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).</p>  | <p><b>Examples:</b> Participates in class discussions. Gives a presentation. Questions new ideas, concepts, models, etc. in order to fully understand them. Knows the safety rules and practices them.</p> <p><b>Key Words:</b> answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.</p>   |
| <p><b>Valuing:</b> The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learners' overt behavior and are often identifiable.</p> | <p><b>Examples:</b> Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with commitment. Informs management on matters that one feels strongly about.</p> <p><b>Key Words:</b> completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.</p>  |
| <p><b>Organization:</b> Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating a unique value system. The emphasis is on comparing, relating, and synthesizing values.</p>   | <p><b>Examples:</b> Recognizes the need for balance between freedom and responsible behavior. Accepts responsibility for one's behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the organization, family, and self.</p> <p><b>Key Words:</b> adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.</p> |

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|--|---|
| <p><b>Internalizing values</b><br/>(characterization): Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).</p> | <p><b>Examples:</b> Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revises judgments and changes behavior in light of new evidence. Values people for what they are, not how they look.</p> <p><b>Key Words:</b> acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies.</p> |
| <p><b>Perception:</b> The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.</p>  | <p><b>Examples:</b> Detects non-verbal communication cues. Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat of stove to correct temperature by smell and taste of food. Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet.</p> <p><b>Key Words:</b> chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects.</p>  |
| <p><b>Set:</b> Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).</p>  | <p><b>Examples:</b> Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations. Shows desire to learn a new process (motivation). NOTE: This subdivision of Psychomotor is closely related with the "Responding to phenomena" subdivision of the Affective domain.</p> <p><b>Key Words:</b> begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.</p>  |
| <p><b>Guided Response:</b> The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.</p>  | <p><b>Examples:</b> Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds to hand-signals of instructor while learning to operate a forklift.</p> <p><b>Key Words:</b> copies, traces, follows, react, reproduce, responds</p>  |
| <p><b>Mechanism:</b> This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.</p>   | <p><b>Examples:</b> Uses a personal computer. Repairs a leaking faucet. Drives a car.</p> <p><b>Key Words:</b> assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.</p>  |

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| <p><b>Adaptation:</b> Skills are well developed and the individual can modify movement patterns to fit special requirements.</p>  | <p><b>Examples:</b> Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task).</p> <p><b>Key Words:</b> adapts, alters, changes, rearranges, reorganizes, revises, varies.</p> |
| <p><b>Origination:</b> Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.</p> | <p><b>Examples:</b> Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine.</p> <p><b>Key Words:</b> arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.</p>  |

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