ACKNOWLEDGEMENT

Much of the content of this document is based on the work of

Dr. Janet Fulks and her colleagues at Bakersfield College.

A more detailed workbook (including comprehensive reading lists) can be found at:

http://online.bc.cc.ca.us/courseassessment/Default.htm
STUDENT LEARNING OUTCOMES

OVERVIEW

This handbook has been produced for faculty with little or no experience of writing Student Learning Outcomes (SLOs). It begins with a brief introduction to SLOs, including a formal definition and a summary of their main benefits. There follows a series of activities that should result in the production of a set of draft SLOs for a specific course. Working in a small group (the recommended method) or individually, it is estimated that completion of these activities and the production of a draft set of SLOs will take a total of approximately 1-2 hours. It is not necessary to complete all the activities in one session.

INTRODUCTION

The drive towards SLOs has come from a number of sources, primarily changes in accreditation standards as a result of developments in educational and pedagogical theory. Consequently the FCC Curriculum Committee has adopted this method of documenting course outcomes, and SLOs are currently required on all Course Outlines submitted to the committee.

As faculty we are expected to keep up-to-date with developments within our specialist fields. Similarly, we have a duty to maintain currency in educational theory. In recent years there has been a shift in educational theory and philosophy away from “teacher-centered” learning (also known as content-based learning) and towards “student-centered” learning.

When planning a course or program the first question often addressed is: “What material will I cover?” This reflects a content-based philosophy. As we move toward a learning-centered approach, the primary question becomes: “What will the students learn?” One way of approaching this question is to ask: “What will the student be able to do at the end of the course (or program, or counseling appointment), that they could not do at the beginning?” The heart and core of a learning-centered approach are statements that define what the students should be able to do - the student learning outcomes (SLOs).

DEFINING STUDENT LEARNING OUTCOMES

Student learning outcomes are the specific measurable goals and results that are expected subsequent to a learning experience. These outcomes may involve knowledge (cognitive), skills (behavioral), or attitudes (affective behavior) that display evidence that learning has occurred, at a specified level of competency, as a result of a course or program.

Learning outcomes are clear and assessable statements that define what a student is able to DO at the completion of a course or program. Learning outcomes provide a focus and a standard for the classroom or the student services program.
**Benefits of Student Learning Outcomes**

Student Learning Outcomes offer significant advantages over old-style objectives. For example:

- Writing SLOs indicates currency with educational theory and complies with the requirements of the accreditation bodies.
- True SLOs suggest or include an assessment method. SLOs provide a robust and objective method of measuring what the students have learned. As such they may be used as a tool for evaluating the quality of the educational experience.
- FCC Course Outlines of Record (including the SLOs) are publicly available documents. The SLOs provide a concise, explicit guide to the key elements of the course. Prospective students are quickly able to tell what they will gain from completing the course.
- SLOs permit flexibility. By carefully crafting the SLOs, Faculty can specify the overarching outcomes without confining either the detailed content or teaching methods.
- The Course Outline of Record, including SLOs, the Expanded Content and Assessment sections provides a comprehensive guide for new Faculty.
- SLOs represent both the target for our service or teaching and the expectation of student achievement as a result of our effort. Assessment information tells us what students can do and how well they have learned as a result of a course or program. It informs us about the effectiveness of our pedagogy. Assessment data provides a culture of evidence which is the foundation for modification of teaching or service and further revisions to the SLOs.

**Course Goals, Objectives and Outcomes**

Before beginning the construction of SLOs it is useful to clarify the differences between goals, outcomes and objectives.

**Course Goal:** the purpose of the course

Examples:

- The goal of this general art course is to cultivate a sense of aesthetic significance through analysis of problems and interpretations as they apply to a variety of disciplines.
- The goal of this general education biology course is to help students acquire and retain relevant biologic knowledge/information, teach them to think/apply this knowledge, and stimulate them to continue learning in the field.
- The goal of this nutrition course is to prioritize key nutrition behaviors, identify health and nutrition needs, and integrate these behaviors into health interventions, educational training, and policy.
- A foundation course in Human Anatomy that will prepare students for health related courses including nursing.
Course Objectives: the specific teaching objectives detailing course content and activities

Examples (from the nutrition course):

The student will understand:

- nutritional recommendations and components
- differences in nutritional requirements associated with sex, age, and activity
- causes and consequences of nutritional problems
- complications of underlying physiologic conditions (e.g. diabetes & mal-absorption)
- key factors involved in correcting nutritional behaviors
- resources and strategies to treat nutritional disorders

Objectives for a course help Instructors focus on delivery of specific content and skills to the students. Objectives allow us to reach a particular goal established in the course. However, having covered the objectives, do we know what the students have learned? Or, put another way, do we know what the student can do at the end of the course that they could not do at the beginning. Course objectives are often not useful in helping us to determine what the student has learned.

Course SLO: an outcome that describes what a student will be able to do at the end of the course

SLOs are statements that define what the student should be able to do after completing the course or program. The SLO defines what will be measured and dictates the appropriate assessment tool.

Example (from the nutrition course):

- A student will analyze a documented nutritional problem, determine a strategy to correct the problem, and write a draft nutritional policy to address the problem.
  Or (an alternative method of writing the same SLO)
- Given a specific nutritional problem, the student will analyze the problem and determine a strategy for correction, as measured by the production of a draft nutritional policy.

This second example uses the:

“Given …X…, the student will …Y…, as measured by …Z…”

model of SLO construction described on the FCC Curriculum Committee web site.

Please note that this is not the same as:

Given lectures, class discussion and reading assignments, the student will demonstrate a basic understanding of …Y…, as measured by their ability to pass an exam, give a presentation or write a report to a standard determined by the Instructo”

This kind of statement reflects content (and how it will be delivered) rather than what the student will be able to do, is very difficult to assess objectively, and therefore would not be considered a true SLO.

Student learning outcomes build upon, but are different from, course or program objectives and goals because they represent a new perspective.
Objectives represent valuable skills, tools, or content which enable a student to engage in a particular subject.

Objectives focus on content and skills important within the classroom or program: what the staff and faculty will do. Often termed the input in the course.

Objectives can often be numerous, specific and detailed. Assessing and reporting on each objective for each student may be impossible.

SLOs represent overarching products of the course.

Outcomes express higher level thinking skills that integrate the content and activities and can be observed as a behavior, skill, or discrete useable knowledge upon completing the class.

An assessable outcome is an end product that can be displayed or observed and evaluated against criteria.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives represent valuable skills, tools, or content which enable a student to engage in a particular subject.</td>
<td>SLOs represent overarching products of the course.</td>
</tr>
<tr>
<td>Objectives focus on content and skills important within the classroom or program: what the staff and faculty will do. Often termed the input in the course.</td>
<td>Outcomes express higher level thinking skills that integrate the content and activities and can be observed as a behavior, skill, or discrete useable knowledge upon completing the class.</td>
</tr>
<tr>
<td>Objectives can often be numerous, specific and detailed. Assessing and reporting on each objective for each student may be impossible.</td>
<td>An assessable outcome is an end product that can be displayed or observed and evaluated against criteria.</td>
</tr>
</tbody>
</table>

Test yourself on the differences between goals, objectives and SLOs - try the quiz in Appendix I.

**WRITING STUDENT LEARNING OUTCOMES**

This section provides a series of activities that should culminate in the creation of a set of draft SLOs for a course or program. Before beginning these activities please read the following “top tips” – key points based on our experiences on the Curriculum Committee.

**TOP TIPS FOR WRITING SLOs:**

1. **FOCUS ON WHAT THE STUDENT CAN DO**
   
   Don't address what was taught or presented (i.e. course content), but instead address the observable outcome you expect to see in the student.

2. **USE ACTIVE VERBS** [See Bloom’s Taxonomy in Appendix II]
   
   Active verbs are easier to measure.
   
   • For example in a biology class, the students may be using microscopes. A possible outcome form this component of the course may be:
     
     The student will demonstrate an understanding of correct use of the microscope.
     
     “Understanding” is very difficult to measure. Consider instead what you would expect the student to be able to do. A better SLO would be:
     
     The student will focus and display an image using the microscope.
     
     This outcome uses active verbs and is much easier to measure. Faculty can develop a series of criteria or rubric to assess the extent to which the student has achieved the outcome.
For the microscopy example these may include:

- a clearly focused image
- correct lighting adjustment of the diaphragm and condenser
- appropriate magnification for the object
- an evenly distributed specimen field
- clearly located object identified by the pointer
- a written identification

Please note that these criteria would not normally be included in the Course Outline of Record.

- A second example (from a Women’s Literature class):

Upon successful completion of the course the student will be able to:

Analyse and respond in writing to a variety of women’s literature, including short fiction, poetry, drama, novels, essays and other genre.

Faculty can develop a series of criteria to help assess the student’s writing:

- development of a thesis
- presentation of coherent and logical claims
- well organized with clear links between claims and support
- well developed with sufficient and relevant evidence
- correct use of standard American English
- appropriate stylistic choices in persona, syntax, and diction etc.

- A third example (from a Figure Drawing class):

Upon successful completion of the course the student will be able to:

Create figure drawings that demonstrate awareness of human anatomy and structure as revealed through the form’s surface.

Orchestrate the visual elements to produce expressive figure drawings rooted in consideration of strong design principles, and conveying subjective meaning beyond objective fact.

For other examples please see Appendix III.

3. **There are no “good” or “bad” verbs. Context is everything.**

“Demonstrate…”

for example, may be appropriate for knife skills in a Food Services Management course or venepuncture in a Nursing course, but as described above

“Demonstrate an understanding of…..” or “Demonstrate an awareness of…..”

are very difficult to measure and would not normally be considered to be part of an SLO.

4. **Share the outcomes**

- with faculty from other disciplines and within your own discipline

This helps clarify the meaning of the statements. For instance, in the microscopy example the faculty may ask for further explanation of “appropriate magnification”.

6
with your students

Students need to clearly understand what is expected, they are often unfamiliar with the discipline-specific language. This helps focus the clarity of the statements.

5. **MODIFY AS YOU LEARN FROM EXPERIENCE**

Leave the word "DRAFT" at the top of your SLOs to remind yourself and communicate to others that you are actively improving them. For examples showing how SLOs improve as they evolve, please see Appendix IV.

6. **BE CAUTIOUS IN THE USE OF BLANKET STATEMENTS**

If you employ an overarching opening statement such as:

> Upon successful completion of this course, the student will be able to demonstrate by his/her performance on discussions, class presentations, written assignments and/or standardized examinations:

then the subsequent statements should make grammatical and contextual sense. In most cases it is better to write the SLO as a stand-alone statement in which the assessment method is specified or implied.

7. **SLOS ARE NOT COMPREHENSIVE COURSE DESCRIPTIONS**

Keep in mind that the SLOs are one part of the whole Course Outline of Record. Faculty often express concern that an entire course cannot be summarized in 5-7 SLOs. The “Assessment” and especially the “Expanded Content” sections provide opportunities to more fully describe the course.

See Appendix V for answers to frequently asked questions relating to SLOs.

**CONSTRUCTING SLOs**

Faculty have reported that the hardest aspect of writing SLOs is simply getting something on paper. That time is now.

- Plan to brainstorm and draft SLOs and get something on paper today.
- **REALIZE** – you have been doing this all along, operating from intuitive and professional experience; the task is to communicate and articulate your goals, outcomes, and criteria.

1. Select your favorite course or program.
2. Think about the course or program dynamics. Complete the table below.

<table>
<thead>
<tr>
<th>Instructional Course &amp; Programs Outcomes</th>
<th>Student Services Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a specific course or program</td>
<td>Select a specific program or service</td>
</tr>
<tr>
<td>Are there any prerequisites for this course?</td>
<td>This program must interface with what other key areas?</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>Does this course serve as a prerequisite for any other courses?</td>
<td></td>
</tr>
<tr>
<td>Course Purpose (Goal)</td>
<td>Purpose, Mission, or Function that best describes this program's role in student learning:</td>
</tr>
</tbody>
</table>

3. As the expert in this discipline and course, begin by thinking about the 5-7 most important things a student should leave your class being able to DO. 5-7 may not seem like enough, you may have 20-50 objectives for a course - but these represent the 5-7 things you will assess - most people would not want to assess and make public 20-50 different objectives.

4. Spend 15 minutes brainstorming; write down words that express knowledge, skills, or values that integrate the most important aspects of your class.

5. BRAINSTORM: In the boxes below briefly list words or descriptions of attitudes, skills, or knowledge that you would like your students to know or do as a result of this course or student services program.
<table>
<thead>
<tr>
<th>Attitudes or values developed as a result of this course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills or performance ability as a result of this course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knowledge and concepts students will have as a result of this course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

6. Use active verbs and the domain charts to craft sentences that are clear and assessable (measurable).
7. Use this checklist to compare your SLOs to some criteria.

<table>
<thead>
<tr>
<th>Student Learning Outcome Checklist</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do the SLOs include active verbs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the SLOs suggest or identify an assessment?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the SLOs address the expected level of learning for the course using Bloom’s Taxonomy as a guideline?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the SLOs address more than one domain (cognitive, psychomotor, and affective)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the SLOs written as outcomes rather than as objectives?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Language indicates an important overarching concept versus small lesson or chapter objectives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Outcomes address what a student will be able to do at the completion of the course.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• SLOs address student competency rather than content coverage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the SLOs appropriate for the course?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Consistent with the curriculum document of record (e.g. Assessment section and Critical Thinking statement)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Represents a fundamental result of the course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Aligns with other courses in a sequence, if applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Represents collegiate level work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will students understand the SLOs?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. If you have answered NO to any of the questions above, revisit the SLO(s).

9. Share these draft SLOs with other faculty to sharpen the focus.

10. Compare the SLO drafts with:
    • course outlines
    • core concepts articulated by professional organizations
    • external expectations such as board requirements or standards
    • articulation and prerequisite agreements
CONCLUSION

This handbook reflects the interpretation of the Curriculum Committee of the current research relating to assessment and SLOs. The examples given are not all inclusive and some could certainly be improved. We hope that the information contained in this handbook has helped you to construct a draft set of SLOs. In our experience the best SLOs result from a thoughtful and thorough consideration of what a course is intended to achieve. Through development and continued modification of SLOs, we will be able to more accurately and objectively measure student learning and provide a means by which curriculum, programs, or services can be refined to better meet the needs of students and faculty.

It is our sincere hope that faculty will take ownership of this process as a means to improve the educational process, rather than seeing this as an educational obstacle that will not improve student learning. Ultimately, more effective teaching should arise from a greater understanding of what we as faculty want our students to be able to do upon completion of our course or program.

Feedback

As part of our aim to provide the useful resources for staff, we would welcome any feedback you may have in relation to this handbook.

- Did you find it useful in the construction of your SLOs?
- Would you recommend this resource to other faculty?
- Do you have any suggestions for improvements?

Please contact the Curriculum Committee Chair with your comments and suggestions for improvement.
Appendix I

Goal, SLO or Objective?

The statements below were written for programs and courses. Analyze the statements to determine whether they are goals, objectives, or student outcomes. Write G for goals, OB for objectives and SLO for student learning outcome in front of each statement.

<table>
<thead>
<tr>
<th>(Engineering course) This course introduces senior engineering students to design of concrete components of structure and foundation and integrate them into overall design structures.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(History course) The student is able to function in teams.</td>
</tr>
<tr>
<td>(Engineering course) Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.</td>
</tr>
<tr>
<td>(Geography course) This course will develop perspectives on GIS for representing data, information, knowledge – interplay among reality, database, and map display.</td>
</tr>
<tr>
<td>(Epidemiology course) Define and assess an epidemic for a given population and recommend factors influencing the use of health services.</td>
</tr>
<tr>
<td>(Ecology course) Critically review and synthesize the findings in scientific literature and make appropriate ecological recommendations based on current knowledge.</td>
</tr>
<tr>
<td>(Sociology course) Students will understand that individuals (and their families) must be regarded uniquely as individuals with many contributing variables such as multicultural issues.</td>
</tr>
<tr>
<td>(Gen Ed. Communication course) In addition to interpersonal communication, we will cover key issues in contemporary mass media, with an emphasis on the nature of media competition, entertainment and news, movies, television, newspapers and the Internet.</td>
</tr>
<tr>
<td>(Immunology course) This course will provide students with a medically relevant foundation of knowledge regarding the components and basic principles of the immune system and the vocabulary and language of immunology.</td>
</tr>
<tr>
<td>(Math course) Given data students will analyze information and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content.</td>
</tr>
</tbody>
</table>
## Goal, SLO or Objective?

### Answers

<table>
<thead>
<tr>
<th>G</th>
<th>(Engineering course) This course introduces senior engineering students to design of concrete components of structure and foundation and integrate them into overall design structures.</th>
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</thead>
<tbody>
<tr>
<td>Obj</td>
<td>(History course) The student is able to function in teams.</td>
</tr>
<tr>
<td>SLO</td>
<td>(Engineering course) Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.</td>
</tr>
<tr>
<td>G</td>
<td>(Geography course) This course will develop perspectives on GIS for representing data, information, knowledge – interplay among reality, database, and map display.</td>
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<tr>
<td>SLO</td>
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<tr>
<td>SLO</td>
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<td>SLO</td>
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</table>
Appendix II

Bloom’s Taxonomy

SLOs, Bloom’s Taxonomy, Cognitive, Psychomotor and Affective Domains.

Bloom (1948) developed classifications of intellectual behavior and learning in order to identify and measure progressively sophisticated learning. College faculty are hired because of their discipline expertise and are sometimes unfamiliar with important pedagogical theories that contribute to effective learning. Bloom's taxonomy is especially important in higher education where outcomes need to address the student ability to use information, not just recall and regurgitate concepts. Lower levels of learning are easier to assess but do not adequately display what the student can DO with the knowledge. Refer to the following pages for diagrams of Bloom's increasing levels of complex learning.

However, learning is not a purely cognitive function; learning occurs differently when it entails performing a skill or re-evaluating behavior. Three domains of learning are recognized:

- **Cognitive domain** defining knowledge classification. See the following page for a table describing increasing complexity in cognitive learning. Each level has examples of verbs that could be used in writing an SLO at this level. These verbs are not magic or mandatory, in the past faculty have found them helpful, these are drawn from a variety of models.
- **Psychomotor domain** (Gronlund, 1970; Harrow, 1972; Simpson, 1972) defining physical skills or tasks classification.
- **Affective domain** (Krathwhol, Bloom, and Masia, 1964) defining behaviors that correspond to attitudes and values. Please refer to the affective table. Affective outcomes tend to be the hardest to articulate initially and often appear difficult to assess at first glance. However, cognitive outcomes often represent the outcomes most closely related to deeper thinking and life-long learning, as well as the outcomes we value most.

NOTE: Student learning outcomes should address relevant outcomes for each of these domains but must be appropriate to the course.

Think about possible means of assessing the outcomes. The essence of student learning outcomes lies in focusing on the results you want from your course rather than on what you will cover in the course. Ask yourself how you will know when you have accomplished those outcomes.
## Bloom’s Taxonomy

### Cognitive Domain

#### Learning Outcomes Related To Knowledge

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Application</th>
<th>Analysis</th>
<th>Synthesis</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student remembers or recognizes information or specifics as communicated with little personal assimilation.</td>
<td>Student grasps the meaning behind the information and interprets, translates, or comprehends the information.</td>
<td>Student uses information to relate and apply it to a new situation with minimal instructor input.</td>
<td>Student discriminates, organizes, and scrutinizes assumptions in an attempt to identify evidence for a conclusion.</td>
<td>Student creatively applies knowledge and analysis to integrate concepts or construct an overall theory.</td>
<td>Student judges or evaluates information based upon standards and criteria, values and opinions.</td>
</tr>
</tbody>
</table>

| Cite | Label | List | Enumerate | Identify | Imitate | Match | Name | Quote | Recall | Reproduce | State | Write | Convert | Define | Describe | Discuss | Estimate | Explain | Generalize | Identify | Illustrate | Locate | Paraphrase | Restate | Summarize | Apply | Chart | Compute | Demonstrate | Determine | Dramatize | Establish | Make | Manipulate | Prepare | Project | Solve | Use | Analyze | Compare | Contrast | Correlate | Diagram | Dissect | Differentiate | Distinguish | Infer | Investigate | Limit | Outline | Separate | Access | Appraise | Conclude | Critique | Decide | Defend | Diagnose | Evaluate | Judge | Justify | Rank | Recommend | Support | Basic | Knowledge | Level | More Sophisticated | Higher Level Thinking | Critical Thinking |
Bloom’s Taxonomy

Psychomotor Domain

Learning Outcomes Related To Skills

<table>
<thead>
<tr>
<th>Observe</th>
<th>Model</th>
<th>Recognize Standards</th>
<th>Correct</th>
<th>Apply</th>
<th>Coach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students translate sensory input into physical tasks or activities.</td>
<td>Students are able to replicate a fundamental skill or task.</td>
<td>Students recognize standards or criteria important to perform a skill or task correctly.</td>
<td>Students use standards to evaluate their own performances and make corrections.</td>
<td>Students apply this skill to real life situations.</td>
<td>Students are able to instruct or train others to perform this skill in other situations.</td>
</tr>
</tbody>
</table>

Hear
Identify
Observe
See
Smell
Taste
Touch
Watch

*Usually no outcomes or objectives written at this level.

Attempt
Copy
Follow
Imitate
Mimic
Model
Reenact
Repeat
Reproduce
Show
Try

Check
Detect
Discriminate
Differentiate
Distinguish
Notice
Perceive
Recognize
Select

Adapt
Adjust
Alter
Change
Correct
Customize
Develop
Improve
Manipulate
Modify
Practice
Revise

Build
Compose
Construct
Create
Design
Originate
Produce

Demonstrate
Exhibit
Illustrate
Instruct
Teach
Train

Basic Knowledge
Basic Skills
Level

More Sophisticated Skills
Higher Level Abilities
Critical Understanding of Performance
# Bloom’s Taxonomy

## Affective Domain

Learning Outcomes Related To Attitudes, Behaviors, and Values

<table>
<thead>
<tr>
<th>Receiving</th>
<th>Responding</th>
<th>Valuing</th>
<th>Organizing</th>
<th>Characterizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students become</td>
<td>Students exhibit a reaction or</td>
<td>Students recognize value and</td>
<td>Students determine a new value or behavior as</td>
<td>Students integrate consistent behavior as a</td>
</tr>
<tr>
<td>aware of an</td>
<td>change as a result of exposure to</td>
<td>display this through involvement or</td>
<td>important or a priority.</td>
<td>naturalized value in spite of discomfort or cost.</td>
</tr>
<tr>
<td>attitude, behavior,</td>
<td>attitude, behavior, or value.</td>
<td>commitment.</td>
<td></td>
<td>The value is recognized as a part of the person’s</td>
</tr>
<tr>
<td>or value.</td>
<td></td>
<td></td>
<td></td>
<td>character.</td>
</tr>
<tr>
<td>Accept</td>
<td>Behave</td>
<td>Accept</td>
<td>Adapt</td>
<td>Authenticate</td>
</tr>
<tr>
<td>Attend</td>
<td>Comply</td>
<td>Adjust</td>
<td>Adjust</td>
<td>Characterize</td>
</tr>
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Elementary Values and Behaviors  
Inherited Value System  
Egocentric View  
More Highly Developed Attitudes  
Well Thought-out Value System  
Higher Level Abilities to Identify and Articulate Others’ Values
Interrelationships between Bloom’s Cognitive Levels

Analysis
The ability to break up information logically

Comprehension
The ability to show a basic understanding

Synthesis
The ability to create something new

Application
The ability to apply learning to a new or novel task

Evaluation
The ability to evaluate usefulness for a purpose

Knowledge
The ability to recall what has been learnt

Appendix III

Examples of SLOs

**English 50 / Women’s Studies 50 – Women in Literature**

Description: Survey of literature by and about women in fiction, drama, poetry, biography, and essay. Covers multicultural and international literature from classical to contemporary periods, in addition to feminist and gender theory.

Upon successful completion of the course, what will the student be able to do?

1. Analyze and respond in writing to a variety of women’s literature, including short fiction, poetry, drama, novels, essays and other genre.
2. Demonstrate in writing an understanding of the importance of the assigned works to the time period and the culture, and to literary tradition.
3. Write about and analyze the various literary elements - such as plot, characterization, setting, voice, meter, tragedy - of selected works of women’s literature.
4. Compare and contrast in writing the ideas found in the assigned reading selections to his/her life.
5. Compare and contrast in writing the ideas found in the assigned reading selections to contemporary life.

**Art Beginning Figure Drawing**

Upon successful completion of FIGURE DRAWING, the student will be able to:

1. Construct drawings through stages of development from the gesture to the final contour.
2. Record the human figure through objective adherence to proportional relationships, notice of negative spaces, value relationships, and line-sighting as methods essential to building the image.
3. Create figure drawings that demonstrate awareness of human anatomy and structure as revealed through the form’s surface.
4. Produce sustained, investigative drawings that make accurate visual statements of the figure’s form in space.
5. Orchestrate the visual elements to produce expressive figure drawings rooted in consideration of strong design principles, and conveying subjective meaning beyond objective fact.
6. Select appropriate graphic materials to influence the expressive content of the figurative form.
7. Articulate a formal analysis of a drawing and its interpretation based on that analysis.

**ACDV B195 Academic Development Word Processing for Students with Disabilities**

Using Microsoft Word or the current word processing program at Bakersfield College, students will:

1. Write a variety of documents, including a single-source research report on assigned topics or subject areas, and send a word processed file attached to an email message.
2. Use a mouse or adaptive equivalent to demonstrate moving the cursor to specific locations in a document, selecting specific text, and moving text to another location.
3. Change text characteristics, margins, justification, and line spacing within a document.
4. Design a document with specified formatted text, a picture, a table, and two columns.
5. Evaluate documents on a disk, determine which to delete or rename, and choose an effective method to do so.
6. Use experience from this course, including the knowledge of menus, icons, screen tips, and “Help” functions, to perform novel tasks in Word and other computer programs.

Eng B34 (Introduction to Library Research)

Upon completing Eng B34 students will be able to:
1. Develop a viable research topic for which information can be successfully located in a variety of college-level resources.
2. Construct a research strategy that will lead to an effective and efficient search for the required information using a variety of appropriate print and electronic sources and based on a working knowledge of the topic gathered from preliminary, background research.
3. Identify the appropriate Library of Congress Subject Headings, and the essential key words, synonyms, and Boolean search statements that will retrieve relevant information on a topic in the library catalog, online databases, and on the Internet.
4. Customize a search in the library catalog, electronic databases, and the Internet using the truncation, limiters, and other advanced searching features that will narrow the results to the most relevant materials.
5. Locate the information using in-library methods such as the library catalog, classification system, periodical citations and holdings lists, and online methods such as searching a range of full-text databases, catalogs from other libraries, and conducting appropriate Internet searches.
6. Evaluate the credibility of print, online database, and Internet information using established criteria including the author’s credentials, published reviews, currency, sources cited, scholarship, etc.
7. Demonstrate an understanding of the legal and ethical issues of information use including plagiarism, documentation of sources, and copyright.

B16: Microbiology

<table>
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<tr>
<th>Domain</th>
<th>Specific Outcomes</th>
<th>Summative Assessment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/ Cognitive</td>
<td>Following Completion of the Microbiology Course (B16) students will be able to:</td>
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<tr>
<td>Cell Theory</td>
<td>Use examples of infections, treatment, and epidemiologic control to compare and contrast the characteristics of prions, viruses, bacteria, protozoans, and multicellular parasites.</td>
<td>Final exam essay question</td>
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<tr>
<td>Microbial Interactions</td>
<td>Explain the dynamics of commensal and pathological relationships that occur between microbes and humans.</td>
<td>Take home case study question for final exam</td>
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<tr>
<td>Microbial Control</td>
<td>Evaluate methods of microbial control and apply the proper methods necessary when given a scenario.</td>
<td>Multiple choice questions on final exam</td>
</tr>
<tr>
<td>Domain</td>
<td>Specific Outcomes</td>
<td>Summative Assessment Method</td>
</tr>
<tr>
<td>-------------------------------</td>
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<tr>
<td>Microbial Metabolism</td>
<td>Briefly describe sample metabolic pathways found in microorganisms and their implications for food production and human disease.</td>
<td>Diagram labeled on final exam</td>
</tr>
<tr>
<td>Microbial Genetics</td>
<td>Summarize basic bacterial genetic principles and analyze implications for mutation, genetic recombination, and bacterial control.</td>
<td>Table completion on final exam</td>
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<tr>
<td>Immune Response</td>
<td>Articulate and diagram the role of the immune system in maintaining homeostasis, challenging infections, and fighting cancer.</td>
<td>Flow chart created by student on the final exam</td>
</tr>
<tr>
<td>Skills/Psychomotor</td>
<td>Following Completion of the Microbiology Course (B16) students will be able to:</td>
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<td>Scientific Method Application</td>
<td>Apply the scientific method by stating a question; researching the topic; determining appropriate tests; performing tests; collecting, analyzing, and presenting data; and finally proposing new questions about the topic.</td>
<td>Two 50 point labs, One team &amp; one individual, Senior Picnic &amp; Unknown lab</td>
</tr>
<tr>
<td>Lab Safety Skills</td>
<td>Correctly perform microbiologic lab skills and display a habit of good lab practices which extends to relevant situations in the student’s homes.</td>
<td>Components of lab assignments above are used to assess these skills</td>
</tr>
<tr>
<td>Attitudes and behavior/Affective</td>
<td>Following Completion of the Microbiology Course (B16) students will be able to:</td>
<td></td>
</tr>
<tr>
<td>Appraisal of microbiologic information</td>
<td>Retrieve, evaluate, and use microbiologic information regarding contemporary issues in the world and relevant to their everyday lives.</td>
<td>Take home essay question on final exam and live patient interview</td>
</tr>
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</table>

Here’s an example with a slightly different format. The SLOs have been arranged according to the specific learning domain, and the assessment method for each is also included. Whether or not it is included in the Course Outline of Record, the use of a table or grid to relate individual SLOs to specific assessment methods is an excellent exercise (and may be required at some point in the future).
NURS B6&B6L: Pediatric Nursing & Lab

Upon completion of Nursing B6/Nurs B6L, students will be able to:
1. Integrate concepts of growth and development in the delivery of nursing care to pediatric clients.
2. Provide nursing care to pediatric clients/families
   • formulating nursing care plans utilizing the nursing process
   • planning interventions based on concepts of normal physiology and pathophysiology and
   • evaluating nursing care plans following implementation
3. Manage delivery of care demonstrating critical thinking to problem solve, organize, and prioritize care for pediatric clients/families.
4. Integrate data derived from an understanding of the pathophysiology of the clinical problem, laboratory results, ancillary reports, and assessment of the client and clinical picture.
5. Differentiate between the child and the adult in regard to nursing approach in delivering care, recognizing signs and symptoms of illness, calculation and delivery of medications, and in planning, assessing and evaluating nursing care.
6. Adhere to the legal and ethical standards of nursing practice and principles related to the care of the pediatric client.

SPCH B1: Speech Communication

At the end of this course you should be able to:
1. manage communication apprehension a.k.a. public speaking anxiety through the use of
   • relaxation techniques
   • visualization techniques
   • positive coping techniques
2. analyze your audience for differences and similarities in
   • socio-economic background
   • learning styles
   • personal interests and needs
3. select speech topics that are appropriate to
   • the audience
   • the occasion
   • the purpose
4. select research materials that will increase audience understanding of your topics using
   • sufficient and relevant evidence
   • credible, reliable and authoritative evidence
   • thought-provoking evidence
   • emotion-provoking evidence
5. design speeches that integrate personal experience and research materials in memorable organizational formats including:
   • the standard speech outline
   • informative patterns: chronological, spatial, topical, causal
   • persuasive patterns: statement of reasons, problem/solution, causal, comparative advantages, motivated sequence
6. create simple presentation aids that will make your verbal message more concrete through the integration of
   • visual aids
   • audio aids
   • other sensory aids
7. present engaging and memorable speeches that
   • capture audience interest
   • express thesis clearly
   • are well-organized and developed
   • conform to time constraints
   • use oral source citation to show evidence of ability to evaluate sources for reliability, credibility and authority
   • incorporate simple, well-constructed presentation aids to clarify meaning and increase audience interest.
   • allow you to showcase the most intriguing elements of your personality
8. assess the effectiveness of other speakers and discuss your analysis through constructive critique.

This example uses detailed SLOs that include some of the performance criteria.

**Journalism 9 – Feature Writing**

Based on classroom lectures, textbook reading and critiqued evaluations of writing assignments, students will be able to:

1. Conduct interviews in a professional manner.
2. Utilize fact gathering and research techniques to construct publishable feature articles.
3. Differentiate newspaper feature writing and magazine article writing.
4. Edit and polish articles to make them acceptable for publication.

These concepts will be measured by the quality of the writing submissions, exams, quizzes, and classroom presentations.

**Dance 10 – Modern Dance**

Upon successful completion of the course, the student will be able to:

1. Demonstrate the fundamentals of body alignment.
2. Execute basic rhythmic locomotor patterns.
3. Develop increase body coordination and technique, especially articulation of the feet and legs.
4. Demonstrate the spatial values of simple dance movements.
5. Develop a basic vocabulary of movement for creative expression.
6. Create a simple dance composition.
7. Organize a response to a simple theme in dance improvisation.
8. Compare two live dance performances.
9. Develop increased body awareness and range of movement.
10. Organize the body to move with a variety of types of energy through space with a sense of time and rhythm.
English as a Second Language 270 – Pronunciation Improvement and Accent Reduction

Based on classroom instruction, discussion, and practice, the student will be able to:

1. Set appropriate goals for improving their own pronunciation;
2. Develop auditory discrimination;
3. Identify and produce individual sounds of English;
4. Recognize and reproduce American English stress, intonation and rhythm;
5. Identify and produce reductions and word endings;
6. Speak with increased clarity and confidence (accuracy and fluency);
7. Self-monitor and self-correct for pronunciation errors; and
8. Recognize and use the American Phonetic Alphabet as measured by quizzes and evaluation of pronunciation.

Music 4 -- Jazz Theory

Upon successful completion of the course, the student will be able to:

1. Analyze, harmonically, the various styles common to commercial music, jazz, Latin, and rock.
2. Utilize the harmonic, rhythmic, and melodic materials of current commercial music styles in harmonization, arranging, and composition.
3. Analyze, perceive, and discuss the structure of the common forms of commercial music, jazz, Latin, and rock.
4. Utilize correct chord symbol and rhythmic notation for the rhythm section (homework assignments).
5. Create a melody and accompanying chord progression in a jazz oriented style.

Philosophy 1D – World Religions

Given classroom instruction and reading representative scriptures from each of the major religious traditions, as well as a textbook in World Religions, the student will be able to

1. Distinguish the similarities and differences in various belief systems
2. Evaluate the basic beliefs and practices of each religion
3. Assess the significance of religion in the history of ideas as demonstrated through class participation and examination.

Given classroom instruction and assigned research, the student will be able to

1. Evaluate the theoretical integrity of several belief systems and formulate a base from which he/she may judge the value of religion in human experience
2. Appraise the relationships between a belief system and its consequences in practices as demonstrated through written assignments and class participation.
TA 43 – Intermediate Acting

Upon successful completion of the course, the student will be able to:

1. Utilize analysis for classical or contemporary text as a means to develop characterization and define action.
2. Use the body responsively in imaginary situations at an intermediate level.
3. Identify effective physical qualities of characters and perform them communicatively at an intermediate level.
4. Analyze the qualities of dramatic character and choose effective means of communicating them at an intermediate level.
5. Solve memorization problems and other problems of scene preparation at an intermediate level.
6. Score a script in relation to a character’s action, intention, motivation and main goal of the character at an intermediate level.
Appendix IV
The Evolution of SLOs

In this Appendix you will find a selection of SLOs, showing how they improve as they are re-drafted.

**First Draft:** In a classroom setting, the student will calculate and/or interpret measures of central tendency and dispersion as measured by the instructor using tests, written assignments and discussion.

**Better Draft:** Given a data set and instructions, the student will calculate and/or interpret measures of central tendency and dispersion as measured by the instructor using tests, written assignments and discussion.

*Why better?* The student does not use “classroom setting” as input for calculating statistics. The student could do the calculation almost anywhere.

**Best Draft:** Given a data set and instructions, the student will calculate and/or interpret measures of central tendency and dispersion.

*Why best?* Evaluation is implied in “calculate and/or interpret.”

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**First Draft:** The student will be able to demonstrate an understanding of basic probabilities and probability distributions.

**Better Draft:** Given data sets, the student will calculate and explain the significance of basic probabilities and probability distributions.

*Why better?* “Understanding” is very difficult to measure or assess.

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**First Draft:** At the end of this course, the student will demonstrate an understanding of the controls utilized by the Federal Reserve System.

**Better Draft:** Given a list of controls, the student will select controls used by the Federal Reserve System.

*Why better?* Eliminates “demonstrate an understanding.”

**Best Draft:** The student will identify and analyze controls used by the Federal Reserve System.

*Why best?* Strong verbs with implicit assessment (identify and analyze). Selecting from a list is too specific and could be better used in a grading rubric.

**First Draft:** Demonstrate sound knowledge of AWS welding symbols.
Better Draft: Recognize and correctly use AWS welding symbols to create a welding plan.

Why better? “Sound knowledge” is too ambiguous to assess. “Creating a welding plan” has better implied assessment – was the welding plan created? How does it look?

First Draft: Given a case scenario and communication prompts, the student will design and construct a 500 word essay with no more than three grammatical errors as measured by standard American English and department style guide.

Better Draft: Given a case scenario or a specific topic, design and write an essay appropriate to the given scenario or topic.

Why better? The first draft contains specific assessment details better used in a grading rubric.
Appendix V

SLOs – Frequently Asked Questions

1. At the last 5-year review it was “Measurable Objectives”, this time it’s SLOs, next time it’ll be something different again. Why should I take the time and trouble to learn about SLOs?

Part of the answer is that the new ACCJC-WASC Accreditation Standards and the California Master Plan for Education both incorporated expectations for student learning outcomes (SLOs) and assessment plans in every course and program in California community colleges (ACCJC-WASC, 2002; California Master Plan for Education, 2002). The underlying purpose is to improve the quality of education, and as Dr. Janet Fulks has said, “If we faculty will not take this responsibility, and own it, and cooperatively lead it with our administrators, we will see more intrusive actions that will not benefit education.” We can look at this as a meaningless hoop we must jump through, or we can take control of it ourselves and use it to make our teaching more effective.

2. Why do SLOs all have to be written in the same way? Doesn’t this diminish diversity and confine all instructors to the same kind of language?

SLOs do not have to be written in a particular way. As you’ll notice if you look at the examples in this handbook, there are many different ways to construct SLOs. The important thing, however, is that they all be written as SLOs and not objectives. Remember, the focus is on what students should be able to do by the end of the course. Given that emphasis, there are a variety of ways to write your SLOs.

3. What exactly is wrong with “demonstrate an understanding” as part of an SLO?

The trouble with this phrase is that it’s hard to imagine assessment. How do you know if students understand something? Generally, if you ask yourself this question, a more specific answer will emerge. If the active verb in an SLO is “demonstrate” it suggests some form of assessed performance. Unless you are actually observing the student doing something in order to assess that component of the course, there is probably a better active verb that could be used instead.

4. What resources are available to Faculty who want to learn more about SLOs?

The workbooks produced by Dr. Janet Fulks and colleagues at Bakersfield College are an excellent resource (web address on the front page of this handbook). In addition the following sources may be useful:

Books:
- Classroom Assessment Techniques by Thomas Angelo and K. Patricia Cross.
- Assessing Academic Programs in Higher Education by Mary Allen.
- Assessing for Learning: Building a Sustainable Commitment Across the Institution by Peggy Maki
- Learning that Lasts by Marcia Mentkowski
- Learner Centered Assessment by Mary Huba
Online:
• Fulks, Janet and Pluta, Kate. (2004) Student Learning in Community Colleges Website
  Table of Contents
• Fulks, Janet and Pluta, Kate (2003) Online Toolkit for Planning Implementing and Assessing a Learning-Centered Course
• “Greater Expectations: A new vision for learning as a nation goes to college” http://www.greaterexpectations.org
• An Assessment Framework For the Community College

5. **How many SLOs should I have?**

   There is no set number of SLOs that everyone should have. It will depend on the course and what you want the students to be able to do at the end of the course. Most classes have between 5 and 7 SLOs. Fewer than 5 and there may be insufficient assessable outcomes. More is not necessarily better. When someone has a dense and lengthy set of SLOs, it is usually because he or she is including more content than necessary. Remember, you are thinking about what the student will be able to do at the end of the course; you are NOT thinking in terms of everything that will be covered in the course.

6. **My 5 Year Review documentation is due tomorrow and I haven’t got the hang of SLOs. Is there anyone I can call for help?**

   If it’s really due tomorrow, you’re in big trouble. Assuming you actually have some time before they have to be submitted, the first source of information should be your Department or Division Curriculum Committee representative. Depending upon how long they have served on Curriculum Committee they may be more or less experienced in the construction of SLOs.

   The following individuals contributed to this handbook and may also be contacted for assistance.

<table>
<thead>
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<th><strong>NAME</strong></th>
<th><strong>EMAIL</strong></th>
<th><strong>EXT.</strong></th>
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<tr>
<td>Mike Gilbert</td>
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<td>8131</td>
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<tr>
<td>Fine, Performing, and Communication Arts</td>
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7. **I’ve already done a lot of work to produce objectives. Is there a quick and easy way to modify these objectives and turn them into SLOs?**

   Unfortunately the short answer to this question is “no”. Some faculty members have used their objectives as the basis for their SLOs. The difficulty with this approach is that the objectives tend to
focus on the CONTENT, not what the student will be able TO DO at the end of the course. The addition of “Given lecture instruction and directed reading, the student will be able to…” at the beginning, and “as assessed through examinations, oral presentations and/or class discussion” at the end does not turn an objective into an SLO. Changing to SLOs is more about a paradigm shift than a mere matter of tinkering with language. There are no magic verbs or phrases one can tack onto objectives to make them into SLOs.