Aligning Learning Outcomes to the Student Learning Experience

California State University, East Bay
Academic Programs and Services

August 14, 2018

Contents

What is the purpose of this document?

An important component of course design is creating, reviewing, and editing program and course learning outcomes to ensure curriculum is aligned to the intended student learning experience. The purpose of this document is to support faculty working together to complete this alignment. While the examples are intended to illustrate common areas for improvement, they are neither pulled from specific campus programs nor are they intended to be "perfect."

Where can I get more support for reviewing and editing outcomes outside my college?

Julie Stein
Educational Effectiveness Project Manager
Academic Programs & Services
julie.stein@csueastbay.edu

Sarah Aubert
Lead Curriculum/Catalog Analyst
Academic Programs & Services
sarah.aubert@csueastbay.edu

What are Program Learning Outcomes and Student Learning Outcomes?

Program Learning Outcomes (PLOs) are broad statements of what the students are expected to do, know, or develop as values as a result of the degree program. PLO's represent students' cumulative learning across courses at the end of a program.

Student Learning Outcomes (SLOs), are aligned with but typically more narrow in scope than PLOs. They specifically define what students should be able to know and do upon completion of the course. Student Learning Outcomes are the basis for selecting the course materials, activities, assignments and assessments and are shared with the students in the course syllabus.

Both program and course learning outcomes focus on the results of student learning instead of on teaching or the learning process.

Why are program and student learning outcomes critical in higher education?

Program Learning Outcomes are important because they let students know the broad knowledge, skills, and abilities they will have after completing the program.

Student Learning Outcomes are important because they:

- Provide students goals and let them know the specific knowledge, skills, and abilities they will have by attending the course.
- Encourage quality course design making it easier to align to relevant activities, assignments, and assessment strategies.
- Enable good quality assessment design to demonstrate evidence of student learning.

What are some key characteristics of a well-designed program learning outcome?

- Relates to and supports the program mission.
- Tailored specifically to a program and how that program's faculty envisions student learning.
- Clearly articulated.
- Focuses on high-priority learning – what is most important for a student to be able to know or do after completing your program.
- Uses active verbs describing how students can demonstrate their learning.
- Represent the level and type of competence appropriate to the educational degree (e.g. Bachelor, Masters, Doctorate).
- Is measurable; helps guide the selection of assessment methods.

What are some areas for improvement for program learning outcomes at CSU East Bay?

Examples:

These are intended to highlight areas for improvement. Out of regard for program anonymity, the specific examples have been changed.

1. No PLO's listed in program proposal.
2. PLO's that did not appear to align with the program description.
3. Writing a high number of PLO's. It is a best practice to have under 10 PLO's for a program representing the most important and enduring learning. However, discipline accreditation requirements may result in more than 10 PLO's.
4. Writing a vague outcome that does not provide enough information about the program components. *Example*:
   ~~Students should know the historically important systems of psychology.~~ Evaluate the psychoanalytic, gestalt, behaviorist, humanistic and cognitive approaches to psychology.
5. Using vague verbs such as "understand" and "appreciate" that do not measure understanding nor are explained in terms of what students should be able to do at the end of the program in measureable, concrete terms that reflect the achievement of an undergraduate degree.
   Example:
   ~~Appreciate~~ Summarize the relationship between innovation and industry growth.
   ~~Understand~~ Apply microeconomic tools and concepts to address public policy issues.
   ~~Understand~~ Assess the role of technologies in the process of technological change.

6. Using the same verb for every outcome without differentiating between levels of learning. For example, while "demonstrate" is a relevant verb to describe an outcome, it is also the most frequently used verb when writing outcomes, and sometimes used as a "placeholder."

   Example:

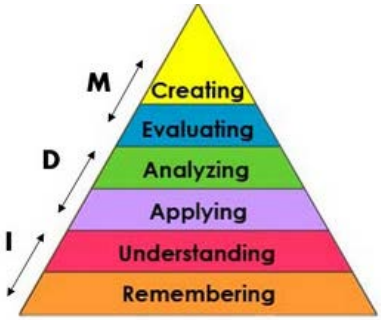
   ~~Demonstrate~~ Recall core knowledge in biological, psychological, and sociocultural ……..

   ~~Demonstrate the ability to~~ Solve problems by applying…

   ~~Demonstrate the ability to be empathetic.~~ Display empathy to others.

More accurate PLO statements help guide faculty in the selection of assessment methods.

- **Solve** problems by applying…
- **Display** empathy to others.
- Recall core knowledge in biological, psychological, and sociocultural …



I = Introduce D = Develop M = Master

7. PLO's that align with Institutional Learning Outcomes (ILOs) but are vague about the discipline.

   Example:

   Thinking and Reasoning: Graduates will be able to think creatively and apply analytical reasoning to address complex challenges and every-day problems in their discipline.

   Collaboration: Graduates will be able to work collaboratively as members and leaders to solve community and global problems.

8. PLO's that are too detailed. Example:

   ~~Perform independently in the professional role. Develop their professional knowledge and skills. Know their values and biases. Understand their impact on others. Know ethical standards. Work well with others.~~ Follow professional and ethical standards when providing care to patients.

What are the key characteristics of a well–designed student learning outcome?

- Describes a learning result rather than a teaching process.
- Describes what the student will be able to demonstrate.
- Is measurable and specific.
- Addresses no more than a single result.
- Is clear (meaning faculty, students, administrators, and people outside the discipline are all able to understand it).
- Is clearly linked to the appropriate PLOs.
- Is reasonable, given the level of the course and students.
- Uses active verbs that specify definite, observable behaviors describing how students can demonstrate their learning.
- Can be taught and assessed.

What are some common areas for improvement with student learning outcomes at CSU East Bay?

- Outcomes that are not written at the level of the course (higher, lower)
- Using vague verbs such as "understand," "know," and "appreciate" that don't measure understanding nor explained in terms of what students should be able to do in more concrete terms.
- Using the same verb for every outcome without differentiating between levels of learning (remember, understand, apply, analyze, evaluate, create).
- Writing the same outcomes for courses with different content .
- Confusing outcomes with learning processes. "Complete a thesis" is a learning process, not an outcome.

What is curriculum mapping and how does it relate to outcomes?

A curriculum map is a table or matrix that shows where learning outcomes are fostered in a program. It is developed by program faculty to chart the relationship between the program outcomes (PLOs) and what is taught in the core courses. It can provide a basis for making decisions about teaching and learning at both the course and the program levels. It can also be useful to faculty in the process of conversion from quarters to semesters, as it focuses attention on how what we are teaching relates to what we have stated as our goals for students to attain.

What is the value of curriculum mapping?

The curriculum mapping process helps determine any gaps or unintended repetitions in course curriculum by charting what is planned and what is actually occurring in individual courses and across the program. By explicitly identifying which learning outcomes are addressed in each course, programs can more easily determine whether the program addresses all learning outcomes in a balanced way, or whether there are gaps or an overemphasis on any particular learning outcome. The curriculum map also makes it easier for faculty to check the sequencing of courses throughout the program to assure students the opportunity to achieve mastery of the program's PLOs.

Looks like **D**evelop is missing from PLO#3

What does a sample curriculum map look like?

Example	Program Learning Outcomes			
**Courses	PLO #1	PLO #2	PLO #3	PLO #4
100*		I	I	
110*	I, D			I, D
200		D		
202*		D		
300	D			
310		M		
405*	M		M (A)	M
499*	M (A)	M (A)	M (A)	M (A)

* Required course for major

Students who graduate with a BS in Veterinary Science will be able to:

PLO #1: Identify (action verb) key components of animal anatomy, biology and physiology (description)

PLO#2: Write and speak clearly and persuasively on veterinary science issues

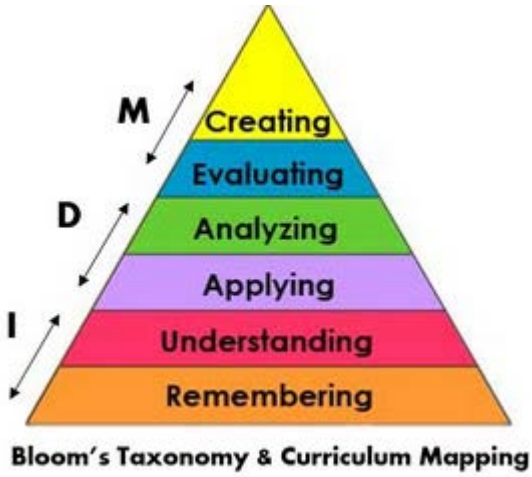
PLO#3: Critically and creatively analyze research data and formulate a testable hypothesis

PLO#4: Generate a personal ethical position regarding treatment of animals

I = Introduced
D = Developed and practiced with feedback
M = Demonstrated at the mastery level appropriate for graduation
(A) = Assessment of mastery (this will be included in your assessment plan)

How does a learning taxonomy relate to outcomes and mapping?

Bloom's Taxonomy is used by faculty to help create clear and meaningful learning outcomes. It describes, in ascending order, the levels of student thinking that must be required for more beginning levels of instruction (introduction), through intermediate levels of instruction (development) to the highest levels of instruction (mastery).



While freshmen can generally be expected to achieve at the more introductory levels, as students' progress through their college years, they are developing and mastering learning and can be expected to achieve higher order thinking: analyzing, evaluating, and creating. Graduate students are expected to achieve the highest levels of thinking.

What tools are available to help design clear and meaningful outcomes?

One helpful tool are the three categories of educational activities listed on pages 9-13 that can help faculty write learning outcomes: 1) Cognitive: mental skills , 2) Affective: growth in feelings or emotional areas, 3) Psychomotor: Manual or physical skills. These categories are not unique to a discipline or course. In any one course, all three elements could be present**.** For example, in a Kinesiology course, one outcome could be to recall disciplinary knowledge (cognitive), another outcome could be to question values to explore personal and cultural sensitivity (affective), and another could be to adapt a physical skill to fit special requirements (psychomotor).

Cognitive domain Taxonomy

Definitions	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
Bloom's Definition	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Solve problems to new situations by applying acquired knowledge, facts, techniques, and rules in a different way.	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	Present and defend opinions by making judgements about information, validity of ideas, or quality of work based on a set of criteria.	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.
Verbs	Choose Define Find How Label List Match Name Omit Recall Relate Select Show Spell Tell: *What* *When* *Where* *Which* *Who* *Why*	Classify Compare Contrast Demonstrate Explain Extend Illustrate Infer Interpret Outline Relate Rephrase Show Summarize Translate	Apply Build Choose Construct Develop Experiment Identify Interview Make use of Model Organize Plan Select Solve Utilize	Analyze Assume Categorize Classify Compare Conclude Contrast Discover Dissect Distinguish Divide Examine Function Infer Inspect Simplify Survey Take part in Test for	Agree Appraise Assess Choose Compare Conclude Criteria Decide Deduct Defend Determine Disprove Estimate Evaluate Explain Influence Interpret Judge Justify Mark Measure Opinion Prioritize Prove Rate Recommend Rule on Select Support Value	Adapt Build Change Choose Combine Compile Compose Construct Create Delete Design Develop Discuss Elaborate Estimate Formulate Imagine Improve Invent Make up Maximize Minimize Modify Originate Plan Predict Propose Solve Suppose Test

Adapted from Anderson, Lorin W., David R. Krathwohl, and Benjamin Samuel Bloom. A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. Allyn & Bacon, 2001.

Affective domain Taxonomy

While the cognitive domain focuses on knowledge, the affective domain (Krathwohl, Bloom, Masia, 1973) includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasm, motivations, and attitudes. The five major categories are listed from the most complex behaviors (Internalizes Values) to the simplest behavior (Receiving Phenomena):

Affective Domain Category	Example and Key Words (verbs)
Internalizes Values (characterization): Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most important characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).	**Examples:** 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. **Key Words:** acts, discriminates, displays, influences, modifies, performs, qualifies, questions, revises, serves, solves, verifies
Organization: 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.	**Examples:** Recognizes the need for balance between freedom and responsible 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. **Key Words:** compares, relates, synthesizes

Valuing: 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 learner's overt behavior and are often identifiable.	**Examples:** 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. **Key Words:** appreciates, cherish, treasure, demonstrates, initiates, invites, joins, justifies, proposes, respect, shares
Responds to Phenomena: Active participation on the part of the learners. Attend and react to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).	**Examples:** Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practice them. **Key Words:** answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, presents, tells
Receiving Phenomena: Awareness, willingness to hear, selected attention.	**Examples:** Listen to others with respect. Listen for and remember the name of newly introduced people. **Key Words:** acknowledge, asks, attentive, courteous, dutiful, follows, gives, listens, understands

Adapted from http://www.nwlink.com/~donclark/hrd/Bloom/affective_domain.html

Psychomotor domain taxonomy

While the cognitive domain focuses on knowledge, and the affective domain on attitude, the psychomotor domain (Simpson, 1972) includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. Thus, psychomotor skills range from manual tasks, such as digging a ditch or washing a car, to more complex tasks, such as operating a complex instrument or dancing. They are listed from the most complex behavior (Origination) to the simplest (Perception):

Psychomotor Domain Category	Example and Key Words (verbs)
Origination: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.	**Examples:** Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine. **Key Words:** arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.
Adaptation: Skills are well developed and the individual can modify movement patterns to fit special requirements.	**Examples:** 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). **Key Words:** adapts, alters, changes, rearranges, reorganizes, revises, varies.

Complex Overt Response (Expert): The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. For example, players are often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce.	**Examples:** Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano. **Key Words:** assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.
Mechanism (basic proficiency): 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	**Examples:** Use a personal computer. Repair a leaking faucet. Drive a car. **Key Words:** assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.
Guided Response: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.	**Examples:** Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift. **Key Words:** copies, traces, follows, react, reproduce, responds
Set: 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).	**Examples:** 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. **Key Words:** begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.
Perception (awareness): The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.	**Examples:** 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. **Key Words:** chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects.

Adapted from http://www.nwlink.com/~donclark/hrd/Bloom/psychomotor_domain.html

Outcomes Alignment For a Kinesiology program

The PLO clearly states what students are expected to know and do at graduation and should be aligned to courses where PLO is introduced, developed, or mastered.

PLO #4 Students will be able to develop, implement, and evaluate health promotion programs for specific target programs.

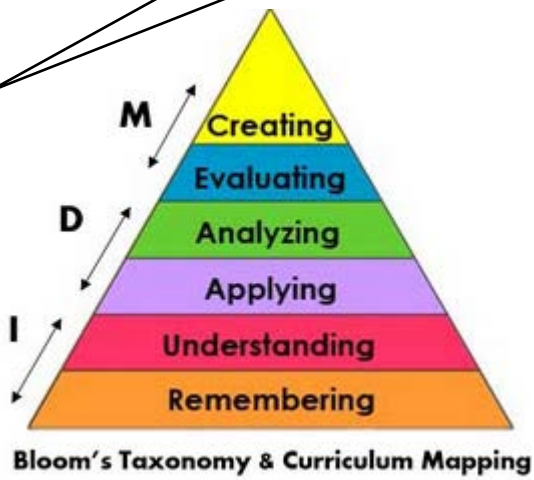
Example	Program Learning Outcomes			
Courses	PLO #1	PLO #2	PLO #3	**PLO #4**
100		I	I	
110	I, D			I, D
200		D		
202		D		
300	D			
310		M		
405	M		M (A)	**M**
499	M (A)	M (A)	M (A)	M (A)

In course 405 students are demonstrating mastery of PLO #4

While some of the SLOs are at the introductory and development level, more written at the mastery level

Student Learning Outcomes for Course 405, aligned to PLO #4

- **Predict** factors that may prevent program success
- **Create** a marketing brochure
- **Develop** a program rationale
- **Develop** methods to evaluate program success
- **Construct** program goals and objectives
- **Conduct** a needs assessment
- **Summarize** how to recruit and select advisory committee members
- **Explain** models currently used in health promotion programming



Outcomes Alignment For a Business program

PLO #3 *Students will understand and apply financial management principles and practices.*

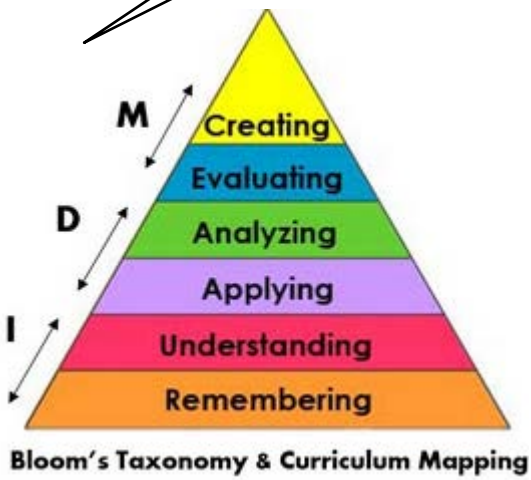
In course 300, students are developing PLO #3

Example	Program Learning Outcomes			
Courses	PLO #1	PLO #2	PLO #3	**PLO #4**
100		I	I	
110	I, D			I, D
200		D		
202		D		
300	D		**D**	
310		M		
405	M		M (A)	M
499	M (A)	M (A)	M (A)	M (A)

SLOs are at the introductory and development level

Student Learning Outcomes for Course 300 aligned to PLO #3

- Analyze and interpret changes in the operating profitability of a firm using the rate of return on assets and its components, profit margin and total assets turnover.
- Analyze and interpret changes in the operating profitability of a firm using the rate of return on assets and its components, profit margin and total assets turnover.
- **Apply** analytical tools for assessing long-term solvency risk.
  Explain the importance of effective working capital management.
- **Explain** the benefits and risks of financial leverage.



Outcomes Alignment For a Social Work program

In course 200, students are beginning development of PLO #2

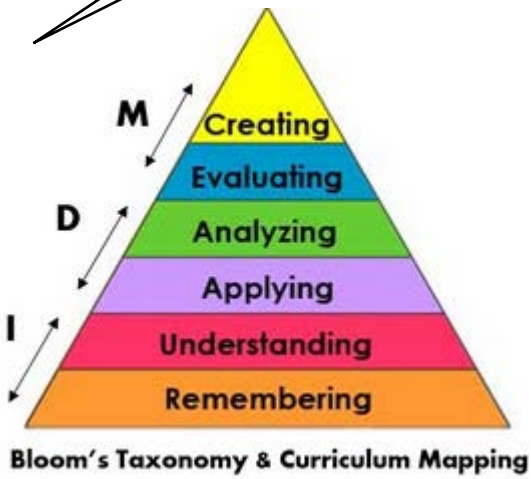
PLO #2 *Apply critical thinking skills within the context of professional social work practice.*

Example	Program Learning Outcomes			
Courses	PLO #1	PLO #2	PLO #3	**PLO #4**
100		I	I	
110	I, D			I, D
200		**I, D**		
202		D		
300	D		D	
310		M		
405	M		M (A)	M
499	M (A)	M (A)	M (A)	M (A)

Student Learning Outcomes for Course 200 aligned to PLO #2

SLOs are at the introductory and development level

- Analyze media coverage for information regarding social problems,
- policies, and programs.
  Describe various programs in public assistance, social insurance, and social service.
- **Identify** the personal, professional and political values that influence a particular policy formulation, implementation, and evaluation.



What is an example of how course learning outcomes help faculty align their curriculum?

Examples of course learning outcomes which connect to relevant course activities, assignments, and assessment strategies.

Course outcomes	Relevant activities	Relevant assignment	Relevant assessment strategies
Analyze literary works for their structure and meaning	• Writing to learn • Scaffold writing assignments with feedback	Final paper	Rubrics for the level of **analysis**
Critically reflect on social justice rooted in community-based experiences	• Class presentation by community partner • Conduct research on social justice topic and local community partner • Complete a local service learning experience	• Write reflective/research paper • Conduct class presentation synthesizing all components	Assessed by community partner using criteria **on critical reflections**
Identify soil texture and structure	Field trip for sample collection	• Test samples in lab • Complete practice quizzes and discuss	Final essay exam where soil samples **are identified**
Critically evaluate the choreography, performance, and theatrical elements of a dance performance	• Observe instructor critique filmed dance performance segments. • Watch film performances and analyze elements with feedback. • In pairs, attend and evaluate campus dance rehearsals and report back to class.	Attend a live campus performance	**A comprehensive written critique of each of the elements**
Compare and contrast the multiple determinants of behavior (environmental, biological, and genetic)	• Use team-based learning • Present problem-based scenarios to teams • Analyze mini-case studies • Conduct research for scenario provided	Conduct poster session for program faculty and students	Criteria for posters **that demonstrate compare/contrast for the content learned**
Develop and present an integrated marketing communications advertising campaign	• Working in teams, students develop campaign with local business owners • Campaign submitted in stages • Students practice assessing campaign examples	• Campaign presented in class • Final written campaign submitted	Campaign **development and presentation** assessed by peers (and faculty) for presence of elements

Sources

Adapted from, "From Program Outcomes to Course Outcomes: Examples." Skidmore College, Curriculum Coordinating Council. Sarasota Springs, NY. seattlecentral.edu/~crc/Assessment/IA_Program_to_Course_Outcomes.htm. Last updated April 19, 2006 by Geoff Mathay. Accessed 22 Aug. 2016.

Allen, Mary. "Assessing Academic Programs in Higher Education. 2004. Jossey-Bass. P. 22-24.

Allen, Mary. "Creating Quality Program Outcomes." April, 2015. WASC Assessment Leadership Academy. Course handout.

"Academic Program Design and Assessment to Support Semester Conversion: A Guide for Faculty." September, 2015. CSU East Bay. Semester Conversion Support from the Office of Educational Effectiveness. Web. 13 June 2016.

Clark, Don. "Bloom's Taxonomy of Learning Domains." Big Dog & Little Dog's Performance Juxtaposition. 12 June 2015. Web. 11 July 2016.

http://degreeprofile.org/dqp-faqs/

https://www.fitnyc.edu/documents/cet/writing-program-student-learning-outcomes.pdf