

Writing Student Learning Outcomes (SLOs): Guidelines and Examples

["Student learning outcomes" (SLOs) and "learning outcomes" (LOs) are used interchangeably.]

Introduction

Higher education has adopted an outcomes based approach to teaching, learning, and assessment. This means that all programs and courses should have clear specific results-oriented statements of intended **student learning outcomes (SLOs) describing what successful students should:**

- **know** (knowledge and information),
- **think** (values, attitudes, disposition), and
- **do/apply** (skills, performance, behavior) → **at the end of their courses and programs.**

Program LOs should be validated annually for currency. It is expected that program faculty will consult with Advisory Committees, businesses, industries, agencies, and baccalaureate schools in the development and updating of LOs and assessments.

This is a change from the traditional approach where colleges defined courses in terms of what was taught, rather than what the student can do at the end of the module, course, or program.

Learning outcomes provide direction in the planning of a learning activity. They help to:

- Focus on learner's behavior that is to be changed
- Serve as guidelines for content, instruction, and evaluation
- Identify specifically what should be learned
- Convey to learners exactly what is to be accomplished

GUIDELINES FOR WRITING STUDENT LEARNING OUTCOMES (SLOs) FOR PROGRAMS AND COURSES

1. When writing student learning outcomes, it may be useful to use the following expression:

At the end of this course/module/program students should be able to . . .

OR successful students will be able to . . . Then follow with an action verb.

Examples: Solve application problems using algebraic functions.
Recognize and correct basic grammar errors in simple sentences.

Note → Use the list of Action Words from Bloom's Taxonomy (following the Guidelines)

2. **Course learning outcomes** are listed on the syllabus. Course LOs should be results-oriented statements that identify what successful students should know, think, and do/apply at the end of their course. Course learning outcomes are subcomponents of and are linked to the program learning outcomes. **(Example course learning outcomes are located at the end of this document – just prior to the program LO links. See page 4-5.)**
3. **Program learning outcomes** should be results-oriented statements that identify what **graduates** should know, think, and do/apply at the end of their program. **(Links to program learning outcomes are at the end of this document. See page 5.)**

4. Learning outcomes (LOs) should:
 - be written in the **future tense**
 - identify **specific** learning outcomes e.g., *Organize and produce an editing project from conception to final output to videotape, disk, or the Web.*
 - be **observable, achievable, and assessable/measureable**
 - use clear language easily understandable to students
5. There should generally be 4-8 LOs for each class or program. When in doubt, fewer are better. Occasionally accrediting bodies may require more LOs. A guideline for determining the number of learning outcomes a course should obtain is just a guideline. The course expert will need to use good judgment in determining what is important for student learning and what is important for success in the course and their future employment in the field.
6. LOs should be the same for all sections of a course. However, each instructor may include on their course syllabi addendum, additional outcomes and/or course expectations.
7. **IMPORTANT** → As students progress through their program curriculum, course learning outcomes should engage students in higher levels of learning as outlined in the following revised Bloom's Taxonomy. Once you have identified the level for the outcome, make sure your choice of verb corresponds. **On the next page, is a list of commonly used verbs, categorized by learning levels.**

Action Verbs from Revised Bloom's Taxonomy (from low to high) for Writing LOs					
Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
define identify describe label list name state match recognize select examine locate memorize quote recall reproduce tabulate tell copy discover duplicate enumerate listen observe omit read recite record repeat retell visualize	explain describe interpret paraphrase summarize classify compare differentiate discuss distinguish extend predict associate contrast convert demonstrate estimate express identify indicate infer relate restate select translate ask cite discover generalize give examples group illustrate judge observe order report represent research review rewrite show trace transform	solve apply illustrate modify use calculate change choose demonstrate discover experiment relate show sketch complete construct dramatize interpret manipulate paint prepare produce report teach act administer articulate chart collect compute determine develop employ establish examine explain interview judge list operate practice predict record schedule simulate transfer write	analyze compare classify contrast distinguish infer separate explain select categorize connect differentiate discriminate divide order point out prioritize subdivide survey advertise appraise break down calculate conclude correlate criticize deduce devise diagram dissect estimate evaluate experiment focus illustrate organize outline plan question test	reframe criticize evaluate order appraise judge support compare decide discriminate recommend summarize assess choose convince defend estimate find errors grade measure predict rank score select test argue conclude consider critique debate distinguish editorialize justify persuade rate weigh	design compose create plan combine formulate invent hypothesize substitute write compile construct develop generalize integrate modify organize prepare produce rearrange rewrite role-play adapt anticipate arrange assemble choose collaborate collect devise express facilitate imagine infer intervene justify make manage negotiate originate propose reorganize report revise schematize simulate solve speculate structure support test validate

More From Bloom → Affective Domain

Sometimes we are concerned with how students *feel*, rather than how they're *thinking* – the affective domain. If you have outcomes for this domain, you may find the following list of verbs helpful in describing the outcomes in measurable terms.

Observable Verbs in the Affective Domain

agree	avoid	engage in
argue	challenge	help
assume	cooperate	join
attempt	defend	offer
attend to	disagree	participate

EXAMPLE COURSE STUDENT LEARNING OUTCOMES FROM OTHER COLLEGES

Machine Technology 1 Learning Outcomes

1. Demonstrate basic shop safety and safe attitudes in all class activities.
2. Analyze engineering drawings and blueprints to determine part feature's size, location, tolerance, and relationships.
3. Use precision measuring tools to manufacture and inspect parts to required specifications.
4. Calculate proper speeds and feeds based on machine operation, conditions, materials, and tooling.
5. Determine dimensions necessary to perform secondary operations such as threading, counter boring, countersinking, and tapping through calculation and use of research materials.
6. Develop a plan of operations to manufacture required parts to specification using the drill press, lathe, and vertical mill.
7. Demonstrate the safe setup and operation of the drill press, lathe, and vertical mill in a manner that efficiently produces the required part to the necessary specifications.

Intermediate Algebra Student Learning Outcomes

1. Solve algebraic equations and inequalities.
2. Examine and interpret the graphs of algebraic functions.
3. Solve systems of equations.
4. Solve application problems using algebraic functions.
5. Use modeling graphs to interpret and make predictions about real-world functions.

Chemistry 1A/1B Student Learning Outcomes

1. Solve quantitative chemistry problems and demonstrate reasoning clearly and completely. Integrate multiple ideas in the problem solving process. Check results to make sure they are physically reasonable.
2. Clearly explain qualitative chemical concepts and trends.
3. Describe, explain, and model chemical and physical processes at the molecular level in order to explain macroscopic properties.
4. Perform laboratory techniques correctly using appropriate safety procedures.
5. Analyze the results of laboratory experiments, evaluate sources of error, synthesize this information, and express it clearly in written laboratory reports.
6. Maintain a laboratory notebook according to standard scientific guidelines.
7. Design, construct, and interpret graphs accurately.

Media "Nonlinear Editing for the Broadcast Media: Final Cut Pro II."

1. Organize and produce an editing project from conception to final output to videotape, disk, or the Web.
2. Demonstrate proficiency in Final Cut Pro 5 basic editing and special effects techniques.
3. Generate animated titles using LiveType.
4. Demonstrate an understanding of editing aesthetics and the conventions underlying current industry practice, as evidenced by their final project.

Anthropology 3: Introduction to Cultural Anthropology

1. Describe the diversity of cultures in the world as well as cultural universals.
2. Apply holistic analysis to social phenomena.
3. Use a holistic perspective to teach others about a culture other than their own.
4. Analyze the relationship between the individual and the social group.
5. Display appreciation for the value of different cultures and awareness of what we learn from them.
6. Discuss the dynamic nature of culture and processes of culture change.

LINKS TO PROGRAM LEARNING OUTCOMES FROM OTHER COLLEGES

College	Link	Program Mission Statement available	Program Learning Outcomes available
Tacoma Community College	http://www.tacomacc.edu/academics/programlearningoutcomes.aspx	X	X
Palm Beach Community College	http://www.pbcc.edu/x17807.xml		X
Seattle Central Community College	http://seattlecentral.edu/programs/learningoutcomes.pdf#page=9		X
Northeast Alabama Community College	http://www.nacc.edu/assessment/SLO/programlearningoutcomes_042707.doc		X
University of Nevada Las Vegas	http://www.unlv.edu/committees/gec/Members/GoverningDocs/Mission-Outcomes.pdf	X	X Gen Ed LOs
California State University	http://www.csun.edu/csbs/departments/psychology/resources/mission_statement.html		X Psychology LOs
California Lutheran University	http://www.callutheran.edu/assessment/student_learning_outcomes/college_mission_statement.php	X	X
Bridgewater State College	http://www.bridgew.edu/AssessmentGuidebook/outcomes.cfm	X	X