

Adapting Tests for Assessing Learning Outcomes Translating Test Scores into Rubric Mastery Levels

Step 1: Design the Test

Develop the test questions with clear learning outcomes in mind and tag each question with the content area being tested. Make sure that all of the relevant learning outcomes are addressed, the distribution of content is logical and the number of questions testing each outcome is proportionate to its importance.

Example: CCR 094 Grammar/Punctuation Test Question Topics

This test was designed to identify CCR 094 students' strengths and weaknesses on both grammar and punctuation. All test questions are multiple choice and are explicitly aligned with a particular element of writing mechanics.

Both a "pre-test" (first week of class) and a comparable "post-test" (final week of the semester) are administered and contain the same number of questions and distribution of content areas/topics being tested, as follows:

Content Area & Topic Code*	Count
<u>Grammar</u>	<u>34 Total</u>
G1: Sentence Fragments	3
G2: Pronoun Usage	9
G3: Run-ons & Comma Splices	5
G4: Subject-Verb Agreement	5
G5: Verb Usage	9
G6: Non-standard English Verb Usage	3
<u>Punctuation</u>	<u>34 Total</u>
P1: Apostrophes	3
P2: Capitalization	2
P3: Commas	7
P4: Modifiers	4
P5: Parallelism	3
P6: Quotation Marks	3
P7: Colons & Semicolons	3
P8: Sentence Structure	4
P9: Non-standard English Sentence Structure	2
P10: Word Choice	3

Table 1: Sample Test Topics and Question Counts

*The topic codes indicated in the table above will be used to refer to the corresponding content areas throughout the rest of this guide.

Step 2: Identify Applicable Student Learning Outcomes

Identify the applicable Course-level SLOs from the Common Course Numbering System (CCNS) database and Program-level SLOs established by the department. Note that you may find it necessary to divide CSLOs and/or PSLOs into sub-points so as to better isolate the individual skills being tested.

Example: CCR 094 Student Learning Outcomes/Tested Skills

CCR 094's Course-level Student Learning Outcomes (CSLOs) include those for co-requisite ENG 121 as well as 4 others that focus on elements of the writing process specific to this 121 "Studio" support course. The following SLOs apply to the test described above:

SLO Source	Learning Outcome	Break-Down of Skills*	Applicable Test Topics
ENG 121 Course Learning Outcome (CSLO 4)	Use accurate grammar, mechanics, and spelling and choose diction and usage appropriate to their writing purposes and audiences.	a) Use accurate grammar.	G1, G3, G4, P4, P5, P8, P9
		b) Use accurate mechanics.	P1, P2, P3, P6, P7
		c) Choose appropriate diction and usage	G2, G5, G6, P10

Table 2: Sample Test Alignment between Topics and CSLO Skills

*The CSLO codes (a, b, and c) indicated above will be used to refer to the corresponding skills throughout the rest of this guide.

Note: Identifying Course-level Student Learning Outcomes (CSLOs) at this stage will be easier and have more long-term benefits. However, in the likely event that CSLO(s) are not yet mapped to program-level outcomes, you will likely want to use your recently established PSLOs to complete this step so that you can use the test for program-level assessment during the current term/cycle.

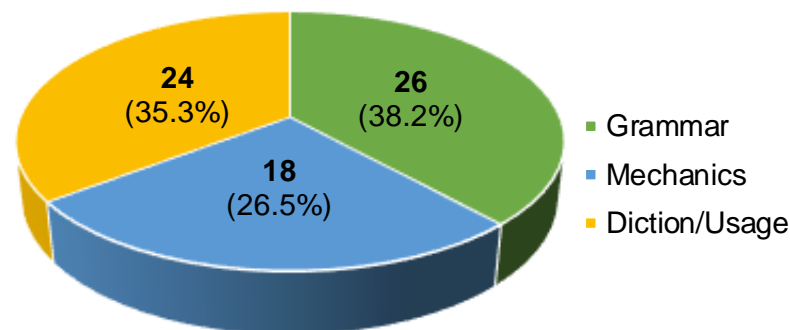
Step 3: Calculate and Evaluate Proportion of Tested Skills

At this point, it is recommended that you calculate the overall proportions of questions according to the applicable CSLO skills being tested to ensure that the distribution is logical and adequately reflects the relative importance of the topics and outcomes represented.

Example: Distribution of Sample Test Questions by Applicable CSLO Skill

In this example, it is appropriate for a slightly larger proportion of test questions to address Grammar and Diction/Usage skills, while questions pertaining to Mechanics and "lower-order" Punctuation concerns are tested by a smaller percentage of questions.

Even still, the overall distribution of questions relatively evenly represents the three core learning outcomes being tested.



Step 4: Identify Applicable Skill Tested by Each Question

After identifying the SLOs that apply to the test topics/content areas and isolating the specific skills being tested, it is now time to similarly identify the which of these skills the questions themselves are designed to test.

Flag each question with a single skill. To do so, it is often easiest to build a table that lists each question, the topic/content area it tests, and the corresponding CSLO skill. See the table below for an example of how you might construct your list.

Example: List of Applicable CSLO Skills for Sample Test Questions

Grammar Section			Punctuation Section		
<u>Question</u>	<u>Topic Code</u>	<u>CSLO 4 Skill</u>	<u>Question</u>	<u>Topic Code</u>	<u>CSLO 4 Skill</u>
1	G3	a	1	P2	b
2	G2	c	2	P2	b
3	G2	c	3	P10	c
4	G2	c	4	P10	c
5	G5	c	5	P3	b
6	G1	a	6	P7	b
7	G1	a	7	P7	b
8	G3	a	8	P10	c
9	G3	a	9	P6	b
10	G5	c	10	P6	b
11	G5	c	11	P6	b
12	G2	c	12	P5	a
13	G2	c	13	P4	a
14	G4	a	14	P5	a
15	G5	c	15	P9	a
16	G5	c	16	P3	b
17	G6	c	17	P1	b
18	G6	c	18	P1	b
19	G2	c	19	P9	a
20	G2	c	20	P3	b
21	G4	a	21	P3	b
22	G4	a	22	P3	b
23	G5	c	23	P7	b
24	G2	c	24	P4	a
25	G1	a	25	P4	a
26	G4	a	26	P8	a
27	G3	a	27	P3	b
28	G2	c	28	P3	b
29	G4	a	29	P4	a
30	G5	c	30	P8	a
31	G5	c	31	P1	b
32	G3	a	32	P8	a
33	G5	c	33	P8	a
34	G6	c	34	P5	a

Table 3: Sample Test Questions and Applicable CSLO Skills

Step 5: Determine Score Ranges for Rubric Mastery Levels

In order to convert test scores (percent of questions answered correctly) into rubric scores (level of mastery achieved according to a 4-point scale), you will establish the score range that represents each level of mastery for each CSLO skill.

Example: Sample Test Score Ranges and Equivalent Mastery Levels

Rubric Score	4	3	2	1
Mastery Level Label & Description	<u>Exemplary</u> Beyond the target level for successful PCC students upon graduation.	<u>Accomplished</u> The desired level for successful PCC students upon graduation.	<u>Developing</u> The anticipated level for current PCC students in intermediate courses.	<u>Beginning</u> The expected level for incoming students in introductory courses.
CCR 094 Test Percentage Equivalents	84%-100%	65%-83%	40%-64%	0%-39%
Grammar Raw Score Range (26 total)	22-26	17-21	11-16	0-10
Mechanics Raw Score Range (18 total)	16-18	12-15	8-11	0-7
Diction/Usage Raw Score Range (24 total)	21-24	16-20	10-15	0-9

Table 4: Sample Test Score Ranges and Equivalent Mastery Levels

Step 6: Convert Test Scores into Rubric Mastery Levels

Using the conversion table developed in Step 5, you can now easily translate each student's test scores into the established Assessment Rubric scale, determining the Mastery Levels achieved by each student through their performance in each skill area tested.

Example: Sample Student's Test Scores Converted to Mastery Level Scale/Rubric Scores

Learning Outcome/Skill	Raw Score	Percentage Score	Mastery Level	Rubric Score
CSLO 4a: Grammar	20 out of 26	77%	Accomplished	3
CSLO 4b: Mechanics	6 out of 18	33%	Beginning	1
CSLO 4a: Diction/Usage	11 out of 24	46%	Developing	2

Table 5: Sample Student Test Performance and Equivalent Mastery Levels/Rubric Scores

Step 7: Report Assessment Results Using Rubric Scores

Finally, report the rubric scores converted from raw/percentage test scores. If CSLO assessments/mapping are already built, enter scores for each student via eLumen. If reporting assessment results via paper forms, aggregate total scores for student performance at each mastery level.

Example: Sample Pre-Test Aggregate Assessment Results

Learning Outcome/Skill	Exemplary (4) Total	Accomplished (3) Total	Developing (2) Total	Beginning (1) Total
CSLO 4a: Grammar	0 students (0%)	7 students (64%)	4 students (36%)	0 students (0%)
CSLO 4b: Mechanics	0 students (0%)	1 student (9%)	4 students (36%)	6 students (55%)
CSLO 4a: Diction/Usage	0 students (0%)	1 student (9%)	8 students (73%)	2 students (18%)

Table 6: Sample Aggregate Rubric Scores Converted from 11 Students' Pre-Test Performance