Student Learning Outcome
Assessment Methods

Presented by
Office of Strategic Planning & Assessment
At the end of this training section, participants will be able to do the following:

- Select appropriate assessment methods for evaluating students’ mastery of the SLOs or PLOs;
- Apply embedded-question method to the assessment of SLOs or PLOs
**Assessment methods:** refer to the use of direct or indirect measures (data sources) to gauge students’ mastery of student learning outcomes.

Appropriate use of assessment methods requires faculty members to have the following two skills:

1. Selecting and designing direct measures (e.g. assignments or exams) or indirect measures (e.g. surveys or interviews) at the program level or course level;

2. Selecting and designing evaluation instruments (a rubric or a score distribution guide.)
Direct Measures look at the actual student work (assignments or exams) that can be used to directly measure students’ knowledge and skills.

Examples: Pre-test, post-test, comprehensive subject matter exam, licensure exam, portfolio, thesis, writing assignment, capstone assignment, and performance demonstration (recital, art exhibit, or science project)
Indirect Measures refer to the type of data that can be used to infer students’ knowledge and skills.

Examples: Surveys, Interviews, Focus Group Studies, Document Analyses, Students’ Self-Reports.
Program-Level Measures: Refer to assignments or tests that assess students’ knowledge and skills at the end of the program, not embedded in any particular course.

Examples:
- Exit exams (standardized, licensure/professional exams)
- Thesis, Dissertation
- Capstone Course Paper or Project
- Portfolios
Course-Level Measures: Refer to assignments or tests that are given in specific courses. These course-level data can be used to measure students’ knowledge and skills at the end of a course or a program.

Examples:
- Exams, Tests
- Rubric-Based Assignments:
  - Projects
  - Essays
  - Portfolios
  - Presentations
  - Performance Demo.
### How to Select Measures?

#### Cognitive Domain

<table>
<thead>
<tr>
<th>Cognitive Domain</th>
<th>Measures Aligned with Cognitive Domain</th>
</tr>
</thead>
</table>
| Demonstrating knowledge and comprehension | **Objective Assignments:** Assignments that have right or wrong answers or the best answers: Multiple-choice questions, true-or-false questions.  
**Subjective Assignments:** Assignments that entail varied responses (no right or wrong answer): Essays, Presentations, Portfolios |
| Application of skills                | **Performance-Based Assignments:** Performance Demonstrations, Artwork, Music Performance, Projects, Presentations, Internship Projects |
| Analysis, synthesis, and evaluation | **Subjective Assignments:** Essays, Essay Questions, Research Paper, Presentations, Portfolios, Internship Projects, Capstone Projects |
### Examples of Measures Aligned with Student Learning Outcomes

<table>
<thead>
<tr>
<th>Student Learning Outcomes (that address different areas of cognitive domain)</th>
<th>Measures</th>
</tr>
</thead>
</table>
| Students will be able to describe history, purpose, and scope of physical therapy. *(Demonstrating Knowledge)* | **Exam** on the history and purpose of Physical Therapy  
**Essay** describing the scope of physical therapy |
| Students will be able to distinguish important aspects of the western moral theories, from the virtue theory of ancient philosophers to the modern theories of act ethics. *(Demonstrating Comprehension)* | **Exam or Essay Questions on the Exam** summarizing the principles of ethical theories  
**Essay** comparing the similarities and differences between the ancient and modern theories |
### Examples of Measures Aligned with SLOs

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will be able to apply appropriate organizational skills for selected types of speeches. (Application of Skills)</td>
<td><strong>Demonstration</strong> of public speaking in front of the class</td>
</tr>
<tr>
<td>Students will be able to analyze a variety of issues that influence learning in secondary schools. (Analysis)</td>
<td><strong>Essay</strong> analyzing which educational movements affected minority students’ learning</td>
</tr>
<tr>
<td>Students will be able to coordinate human information and material resources in providing care for patients and their families. (Synthesis).</td>
<td><strong>Internship</strong> in a clinical setting to provide patient care under the supervision of an experienced physical therapist.</td>
</tr>
</tbody>
</table>
A rubric is needed if an assignment entails varied responses, rather than one correct answer.

- Essay
- Essay questions on an exam
- Research paper
- Oral presentation
- Portfolio
- Demonstration of critical thinking skills
- Demonstration of technical skills
- An Art Show, etc.
If assignments or exam questions entail only right or wrong answers, then a score distribution guide indicating the distribution of points for correct answers is used.

- Math questions
- Multiple-choice questions
- True or false questions
- Filling-in-the-blanks test
- Matching exercise or test
**Directions:** For each of the following PLOs, specify what assignment or exam can be used to assess the PLO. Also, identify if the assignment or the exam need a rubric or a score distribution guide.

<table>
<thead>
<tr>
<th>Program</th>
<th>PLOs</th>
<th>Measures (Assignments or Exams)</th>
<th>Evaluation Instrument (Does this assignment need a rubric or a score distribution guide?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Care Therapist</td>
<td>Establish and maintain effective interpersonal relationships and be able to function interdependently with allied health personnel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Communications</td>
<td>Apply design principles to execute industry specific project objectives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Services</td>
<td>Demonstrate basic math skills by calculating percentages, payroll, loans, discounts, etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Directions: For each of the following course SLOs, specify what assignment or exam can be used to assess the PLO. Also, identify if the assignment or the exam need a rubric or a score distribution guide.

<table>
<thead>
<tr>
<th>Courses</th>
<th>SLOs</th>
<th>Measures (Assignments or Exams)</th>
<th>Evaluation Instrument (Does this assignment need a rubric or a score distribution guide?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Analyze and evaluate economic events that apply to the preparation of financial statements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ACNT 2303)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>Explain the role of scarcity, specialization, opportunity cost and cost/benefit analysis in economic decision making.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ECON 2301)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>Demonstrate understanding of federalism.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(GOVT 2305)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Embedded questions are questions that assess a course learning outcome (SLO) or a program learning outcome (PLO), but are embedded in an exam or in an assignment.

**Nursing program exit exam**
- Questions in "Communication" section of Quality and Safety Education category assess PLO2
- Questions in "Collaboration/Managing Care" section of Nursing Concepts category assess PLO4

**EDUC 2301 Capstone Project: Create a Lesson Plan**
- The part of the lesson plan that addresses legal aspects of accommodating ESL students is used to assess PLO1
- The part of the lesson plan that demonstrates critical thinking skills assesses PLO5
Report the embedded questions’ result for its related PLO;
Don’t use the whole exit exam’s score or the whole capstone project’s score as one particular PLO’s result.

Nursing program exit exam
- PLO2 result: 925
- PLO4 result: 915

EDUC 2301 Capstone Project:
- PLO1 result: 96%
- PLO5 result: 85%
1. MATH 2413 assesses SLO2 (“Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point”) by using two questions embedded in the final exam.

The pass rate for the exam was 78%, but the pass rate for the two embedded questions was 50%.

Which pass rate should be used to demonstrate the mastery of SLO2?
2. HIST 2322 assesses SLO1 (“Create an argument through the use of historical evidence”) by using an essay question embedded in Exam II.

The pass rate for Exam II was 71%, and the pass rate for the essay question was 65%.

Which pass rate should be used to demonstrate the mastery of SLO1?

