Talent Strong Texas Pathways Institute #5

# Designing PLOs to Make Assessment Scalable, Sustainable and Meaningful

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This institute will pay particular attention to the design of program learning outcomes (PLOs) and the assessment of PLOs for program improvement.

Focus on HOW to Scale Impactful Practices

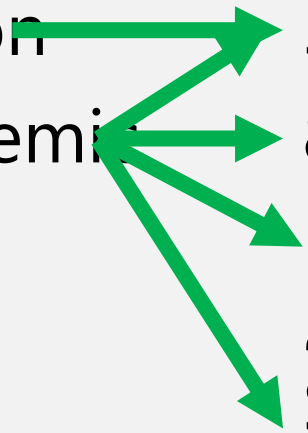
# Conventional Understanding of PLOs

- PLOs are statements of what students should know and be able to do.
- PLOs should represent the entire degree program.
- PLOs should be composed by faculty because they are the experts in their discipline.

# Business Students in English Courses

English Literature PLOs

4. Written Communication
8. Professional and Academic Skills



Business PLOs

3. Communication Skills
8. Professional Skills & Leadership
2. Critical Analysis & Problem-Solving
9. Strategic Thinking

# PLO Crosswalk

**Business**

**English Literature**

| | PLO #1 | PLO #2 | PLO #3 | PLO #4 |
|---|---|---|---|---|
| **PLO #1** | | | | X |
| **PLO #2** | X | | | |
| **PLO #3** | Not Compatible | | | |
| **PLO #4** | | X | | |

# PLO Crosswalks

## Core Curriculum (15-20)

- Art
- Biology
- Chemistry
- Drama
- English
- Geology
- Government
- History
- Math
- Music
- Philosophy
- Physics
- Psychology
- Sociology

## Degree Programs (100+)

- Accounting
- Air Conditioning
- Architecture
- Art
- Analytical Instrumentation…
- Mathematics
- Physics
- Process Tech
- Psychology
- Safety Mgt
- Welding
- Theatre

# ~~Conventional~~ Correct Understanding of PLOs

- PLOs describe what students should know and be able to do
- PLOs should represent the entire degree program.
- ~~PLOs should be composed by faculty because they are the experts in their discipline~~
- A universal set of PLOs should be established for all programs to share to ensure compatibility

# Universal Program Learning Outcomes

**Core Learning Outcomes (THECB)**

- Communication Skills
- Critical Thinking
- Empirical and Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

**Program Learning Outcomes**

- Physical Skills
- Aesthetic Sense
- Content Knowledge
- Information Technology Skills
- Spatial Reasoning
- Employment Skills

# Different Definitions of the Same PLO

Critical Thinking in Biology

- Use logic and evidence to evaluate biological concepts, research, and theories. Students will carefully and objectively analyze scientific studies, identifying sources of bias, questioning assumptions, and formulating counter arguments to broaden their perspectives.

Critical Thinking in Social Work

- Logically analyze social issues and client situations from multiple perspectives, question assumptions and biases, and weigh alternative solutions. Integrate evidence to construct well-reasoned assessments and action plans. Employ ethical reasoning processes, considering the standards of the social work profession.

# PLOs and Sub-PLOs for Biology

**Core Learning Outcomes**

- Communication Skills
- Critical Thinking
  - Scientific Process
- Quantitative Reasoning
- Information Literacy
- Cultural and Global Awareness
- Self-directed Learning

**Universal PLOs**

- Physical Skills
- Aesthetic Sense
- Content Knowledge
- Teamwork
- Spatial Reasoning
- Employment Skills

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# Specialized Accreditors' PLOs

# ABET (Engineering & Technology)

1. **Empirical and Quantitative Skills – Problem Solving:** An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. **Critical Thinking:** An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. **Communication:** An ability to communicate effectively with a range of audiences.
4. **Personal Responsibility:** An ability to recognize ethical and professional responsibilities in engineering situations.

   **Social Responsibility:** An ability to make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. **Teamwork:** An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. **Empirical and Quantitative Skills – Experimentation:** An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. **Employment Skills:** An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

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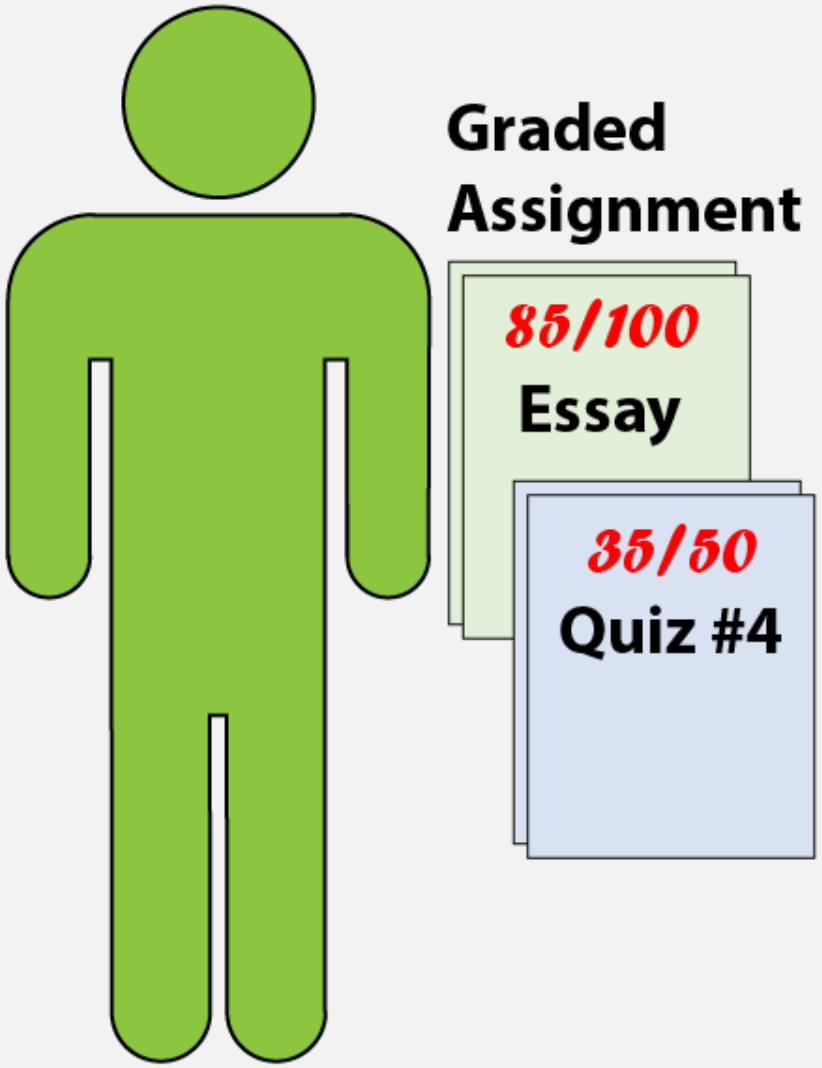
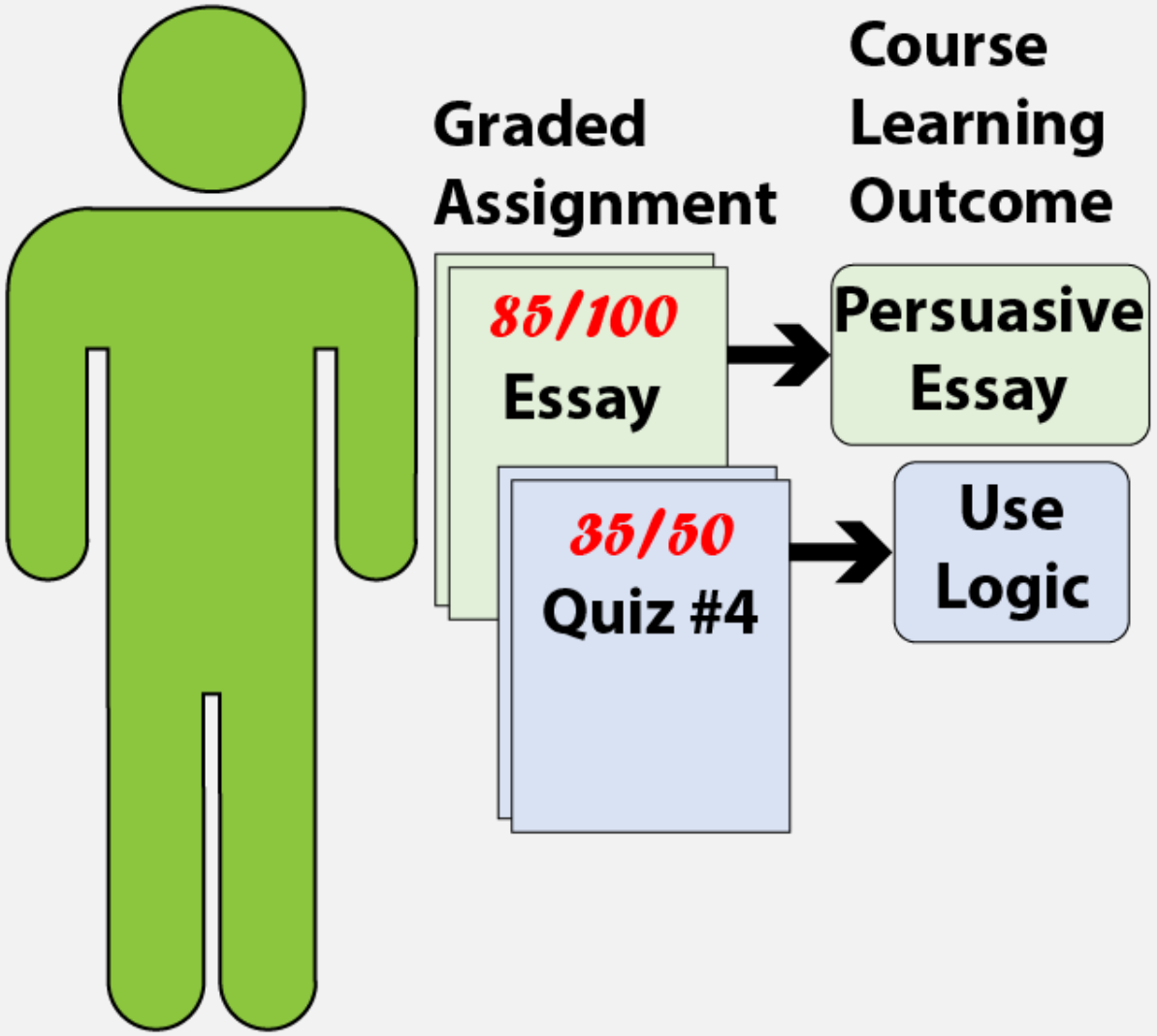
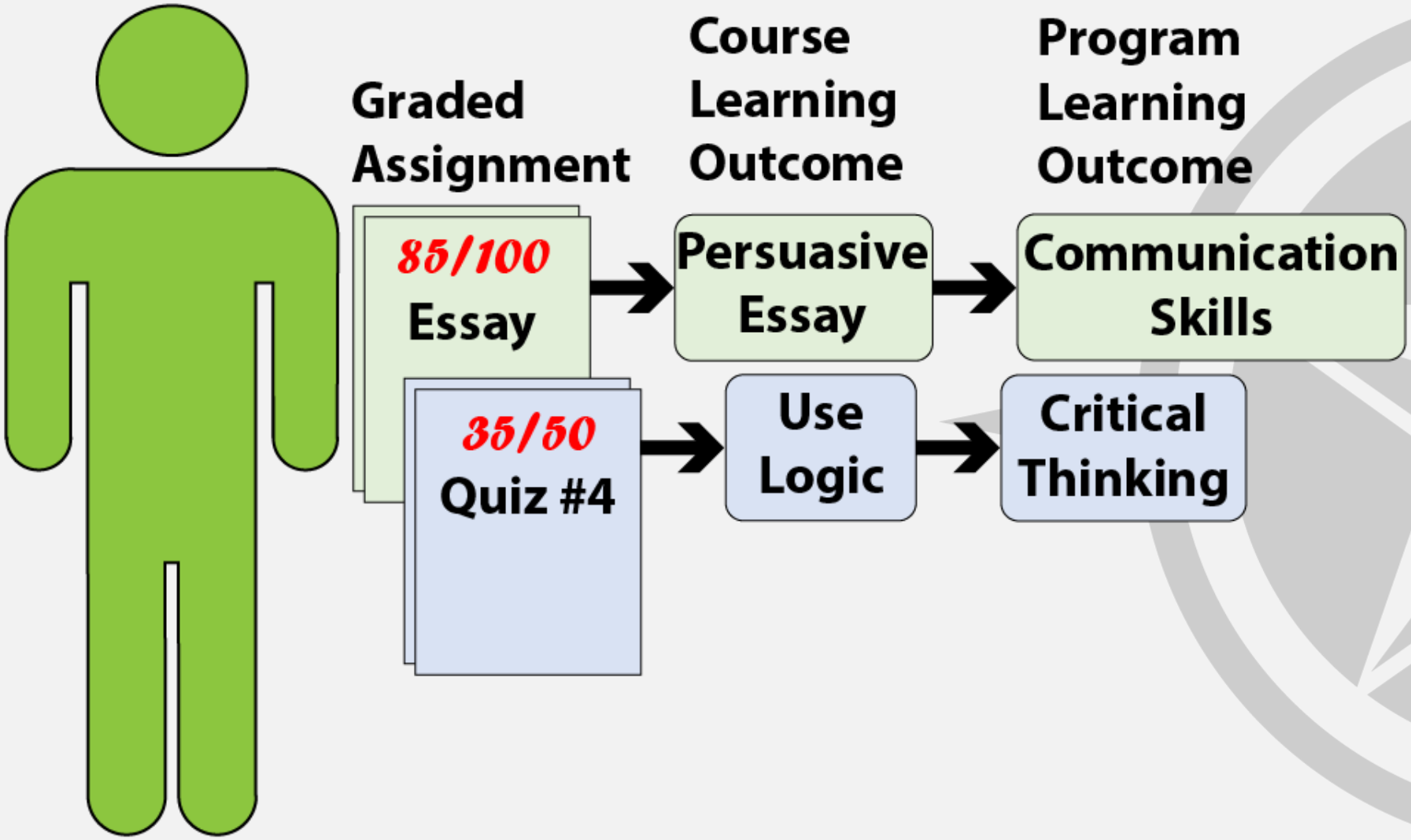
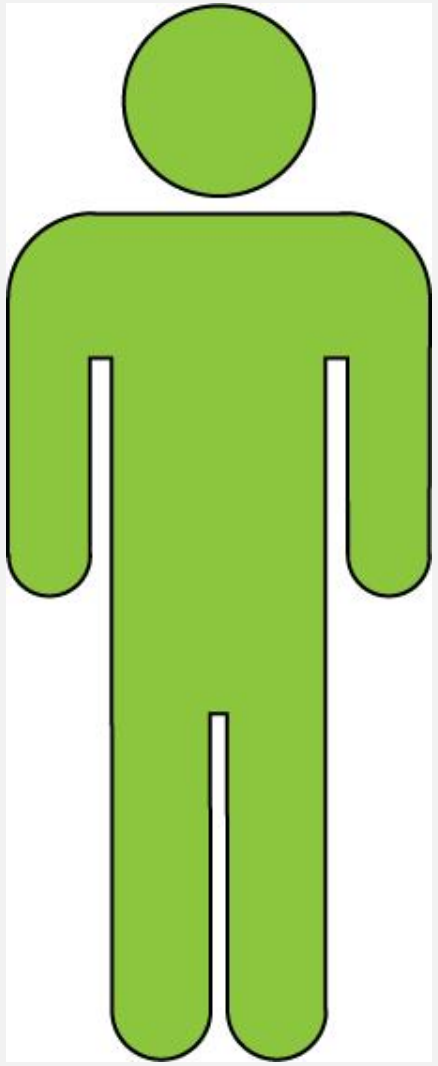
# Using Universal PLOs


Graded
Assignment
85/100
Essay
35/50
Quiz #4


Graded Assignment
Course Learning Outcome
85/100
Essay
Persuasive Essay
35/50
Quiz #4
Use Logic


Graded Assignment
Course Learning Outcome
Program Learning Outcome
85/100
Essay
35/50
Quiz #4
Persuasive Essay
Use Logic
Communication Skills
Critical Thinking



Critical Think 78/100

Goal 2:

Goal 1:
50/50
TERM
PAPER

Goal 2:

Goal 1:
92/100
FINAL
PROJECT

Goal 3:

Goal 2:

Goal 1:
47/50
FINAL
EXAM

Goal 2:

Goal 1:
68/75
TERM
PAPER

# Degree Program “Grade Book” for Student Learning

| Business Xfer Students | Critical Thinking | Social Responsibility | Empirical & Quantitative | Communication |
|---|---|---|---|---|
| Student #1 | 78 | 85 | 71 | 100 |
| Student #2 | 71 | 76 | 70 | 93 |
| Student #3 | 76 | 94 | 92 | 98 |

Data Entry Programs Assessment Imports Users

# Performance Reporting

Terms: 2240 × 2242 ×

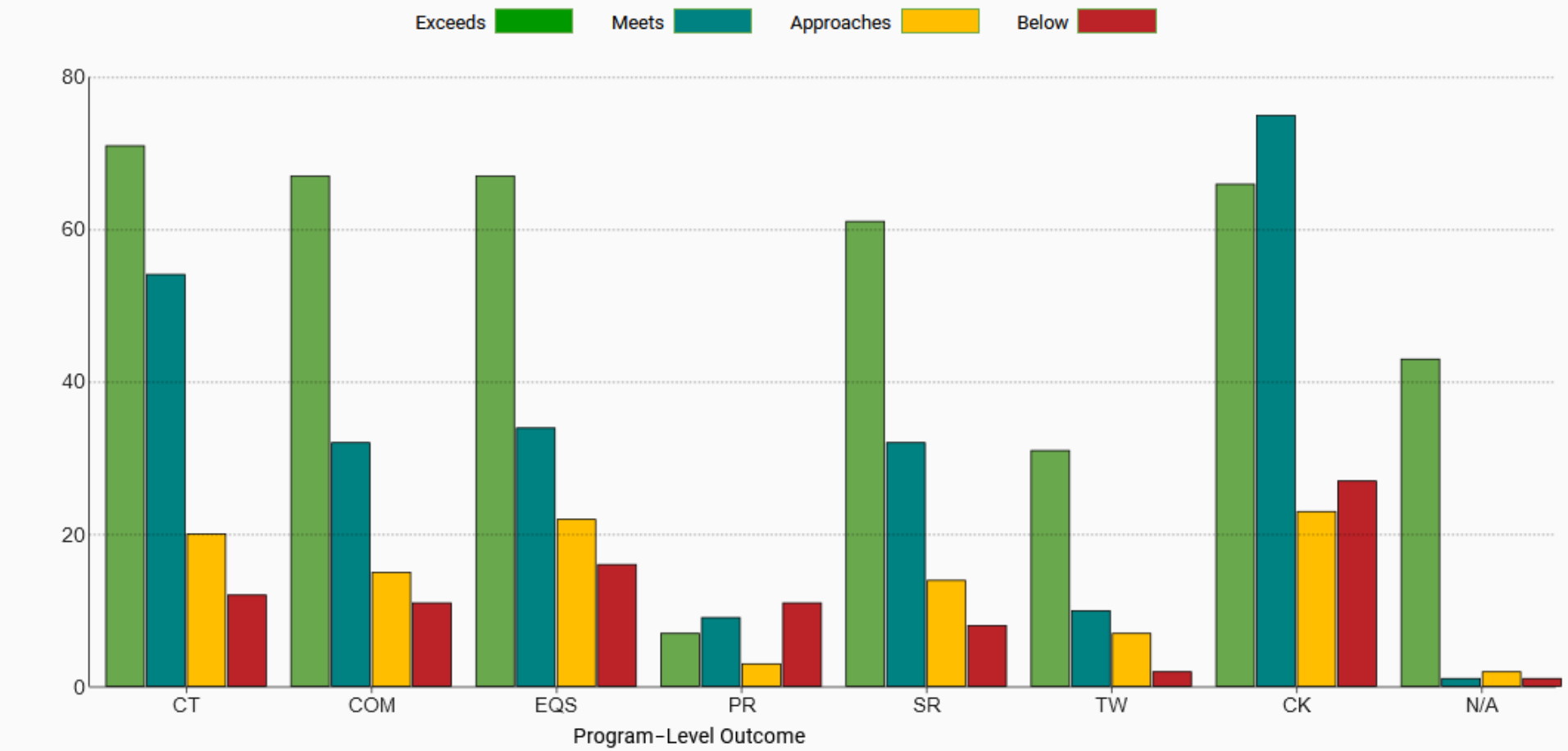
Business Xfer Program Group

Award Type: AA

Student Status: Declared Students

Program-Level Outcomes | Curriculum Matrix | Course-Level Outcomes

Export



# Conventional Assessment

- Assessment scores are reported anonymously
- Assessment scores are aggregated by class
- Program Learning Assessment is based on class averages

# ~~Conventional~~ Correct Assessment

- ~~Assessment scores are reported anonymously~~
- Assessment scores are individually identifiable
- ~~Assessment scores are aggregated by class~~
- Assessment scores are aggregated by student over multiple courses
- ~~Program Learning Assessment is based on class averages~~
- Program Learning Assessment is based on aggregating over all students in a specific degree program

# Summary: Design of PLOs

- A single set of Universal PLOs is used by all programs
- Universal PLOs allow assessments in any course to be used for any program; assessment data are not wasted
- Programs can create their own definitions of PLOs
- Programs can create sub-PLOs to measure specific outcomes
- Assessment scores are individually identifiable and are aggregated by student across multiple courses
- Program assessments is based on the aggregation of assessments of all students in the program

# Quick Demo

# Scalability, Sustainability & Meaningfulness

- X Scheduling PLO assessment over a multi-year cycle
- X Asking faculty to analyze their own assessment data
- X Collecting artifacts of student learning
- X Committee-based assessment of artifacts
  - X Designing rubrics for the committee
  - X Training committee members to evaluate against the rubric
  - X Scheduling committee meetings

# Scalability, Sustainability & Meaningfulness

- ✓Universal PLOs
- ✓Assessment of Every Student in Every Course, Every Semester
- ✓Automatic Program Outcomes Graph
- ✓Automatic Curriculum Matrix
- ✓Ability to View Performance in Individual Courses

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# The Faculty Perspective

# How Well Prepared are Recent College Graduates?

| | Employers | College Presidents |
|---|---|---|
| Very Well Prepared | 2% | 23% |
| Well Prepared | 18% | 50% |
| Prepared | 49% | 25% |
| Unprepared | 28% | 2% |
| Very Unprepared | 3% | 0% |

Pearson, *Breakthrough to Greater Student Achievement* (2013), p. 15

**Surveys suggest that 90% of faculty believe they are above-average teachers.**

e.g., Lion Gardener, Redesigning Higher Education: Producing Dramatic Gains in Student Learning (1994) p. 57

**Since there is no accepted method of measuring just how much students are learning, most professors see no convincing reason to change.**

Derek Bok, The Struggle to Reform our Colleges (2017) Princeton, p. 49