PROGRAM ASSESSMENT REPORT 2022–2024
BARTON COMMUNITY COLLEGE

I. REPORT OVERVIEW

This report reviews Barton's program level assessment results for 2022–2024 and explains the connection between student learning and course success. It highlights measurable progress since the 2019–2021 report and identifies areas for continued improvement. The goal is to make assessment data usable and meaningful. The report demonstrates how faculty collaboration drives student achievement and informs curriculum refinement.

Purpose:
To evaluate program learning outcomes, track progress over time, and guide evidence-based strategies that strengthen teaching and learning. The report moves from framework and analysis to comparative results, then documents faculty actions, and concludes with future priorities. This structure ensures readers can follow the progression from data to action.

What you will find:

- **Assessment framework:** Measurement and organization of learning outcomes using Bloom's Taxonomy.
- **Data analysis:** Patterns in learning and passing rates using statistical and visual methods.
- **Comparative results:** Progress compared to the 2019–2021 report.
- **Faculty actions:** Examples of faculty-driven curriculum improvements informed by data.
- **Next steps:** Recommendations for sustaining gains and addressing opportunities for improvement.

Key insights:

- **Progress achieved:** Cognitive skills across Bloom levels show significant improvement.
- **Alignment confirmed:** Strong correlation between learning and course success across Bloom levels.
- **Collaboration matters:** Faculty-driven strategies and collaboration are producing measurable results.

This report demonstrates Barton's commitment to continuous improvement through systematic Program Review, which Barton refers to as Instructional Review, ensuring curriculum decisions are informed by assessment data and aligned with institutional quality standards.

II. PROGRAM LEARNING OUTCOMES

As part of Barton's mission to offer exceptional learning opportunities, program learning outcomes define the knowledge and skills students are expected to achieve upon program completion. These outcomes guide curriculum design and Instructional Review, ensuring learning expectations are clear, measurable, and consistently met. Assessing program learning outcomes helps Barton identify strengths, address gaps, and implement improvements that enhance student success and program quality.

A. BENCHMARK DEFINITION

Program learning outcomes are evaluated against benchmarks that define expected levels of achievement.

Benchmarks:

- **Baseline benchmark (Diagnostic floor):** 50%.
- **Standard benchmark (Institutional expectation):** 70%.
- **Aspirational benchmark (Stretch goal):** 80%.

These benchmarks reflect shared faculty expectations and provide well defined goals for measuring student learning.

B. BLOOM'S TAXONOMY

Traditional program analysis often tracks where outcomes are Introduced (I), Practiced (P), and Applied (A) to identify gaps in progression. Barton programs do not always follow a strict course sequence, so an IPA analysis is less effective.

Following guidance from Higher Learning Commission (HLC) Assessment Academy Mentors, Barton applied Bloom's Taxonomy to program learning outcomes. Bloom's Taxonomy represents a hierarchy of cognitive skills for learning, organized into six levels that progress from foundational to advanced thinking: remember, understand, apply, analyze, and evaluate, and create.

The six cognitive domains were then grouped into three paired levels.

Paired Bloom levels:

- **Low level:** Remember and Understand, abbreviated as Remember (**R**).
- **Middle level:** Apply and Analyze, abbreviated as Apply (**A**).
- **High level:** Evaluate and Create, abbreviated as Evaluate (**E**).

This RAE framework mirrors the traditional IPA analysis and provides a practical way to examine learning progression in nonsequential programs. It also serves as the basis for the statistical and regression analyses in this report.

III. ANALYSIS

This report examines how student learning rates relate to course passing rates across Barton's programs. Rather than focusing on a single program, the analysis aggregates data to identify patterns and guide improvement strategies.

Statistical terms appear in the results to support interpretation. For example, p-values indicate the likelihood that an observed result occurred by chance. A smaller p-value suggests the finding is meaningful rather than random. To streamline interpretation, an asterisk (*) next to a p-value signals statistical significance.

A. MULTIPLE REGRESSION ANALYSIS

A multiple regression model was applied to explore how Bloom levels influence passing rates. The model included three predictors: Bloom's category (x_1), the percentage of students meeting the competency (x_2), and the year (x_3), with the outcome being the percentage of students passing the course (y). Each coefficient (β) indicates how much the passing rate changes when a predictor changes by one unit while holding other predictors constant.

Interpretation:

- **Positive coefficient:** Passing rates increase as the predictor increases.
- **Negative coefficient:** Passing rates decrease as the predictor increases.

Coding for consistency:

- x_1 = {R = 1, A = 2, E = 3}.
- x_2 = Percentage of students meeting the competency (**Learning rate**).
- x_3 = {2022 = 1, 2023 = 2, 2024 = 3}.
- y = Percentage of students passing the course (**Passing rate**).

Coefficients:

- β_1 = – 0.0198 (margin of error ± 0.007; p-value: 1.37E-07*).
- β_2 = 0.1282 (margin of error ± 0.033; p-value: 3.05E-14*).
- β_3 = 0.0131 (margin of error ± 0.006; p-value: 5.53E-05*).

Because the sample size is large, the analysis has high statistical power, making even small effects statistically significant. Therefore, while it is not surprising that all p-values are significant, competency related learning rates show the strongest influence on passing rates.

Key findings:

- Courses with higher Bloom levels tended to have lower passing rates, about 1.2–2.7%.
- Fully meeting a competency was associated with higher passing rates, about 9.5–16.1%.
- Each additional year showed a small improvement, about 1–2%.

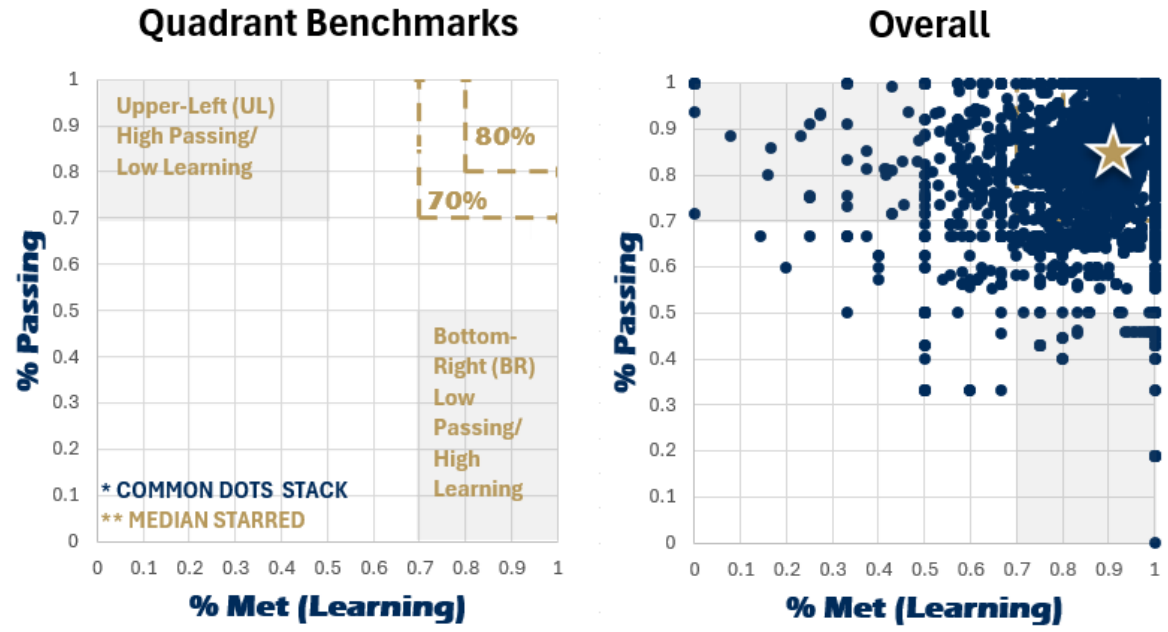
These results confirm that learning is the strongest indicator of passing a course, even though other factors can influence grades independent of learning.

Model fit and diagnostics:

- **Multicollinearity:** Pairwise correlations among predictors were near zero (all < 0.05), confirming no multicollinearity concerns.
- **Variance explained:** The model accounts for about 3% of the variance (R^2 = 0.032; Adjusted R^2 = 0.032).
- **Global significance:** A global F-test indicates the model is statistically significant (p-value: 1.98E-22*), confirming the predictors jointly explain variation beyond a constant only model.
- **Residual diagnostics:** The model is acceptable for inference on direction and relative influence, but not for high precision prediction.

B. QUADRANT FRAMEWORK

A scatter diagram was used to examine the relationship between learning rates and passing rates. The horizontal axis shows the percentage of students meeting a competency (learning rate), and the vertical axis shows the percentage of students passing the course (passing rate).



Benchmark quadrants:

- **Upper right (UR):** High passing and high learning.
  - 70% benchmark gridlines.
  - 80% benchmark gridlines.
- **Upper left (UL):** High passing and low learning.
- **Lower right (LR):** Low passing and high learning.

Most data points cluster in the upper right quadrant, confirming Barton's strategies increase both learning and passing rates. However, patterns outside this quadrant may signal areas for curriculum review. Grades can be shaped by factors beyond learning. Therefore, when reviewing curriculum, faculty should consider these potential influences:

Performance adjustments (Dependability and Reliability):

- **Positive (UL):** Extra credit.
- **Negative (LR):** Penalty deductions for late submissions.

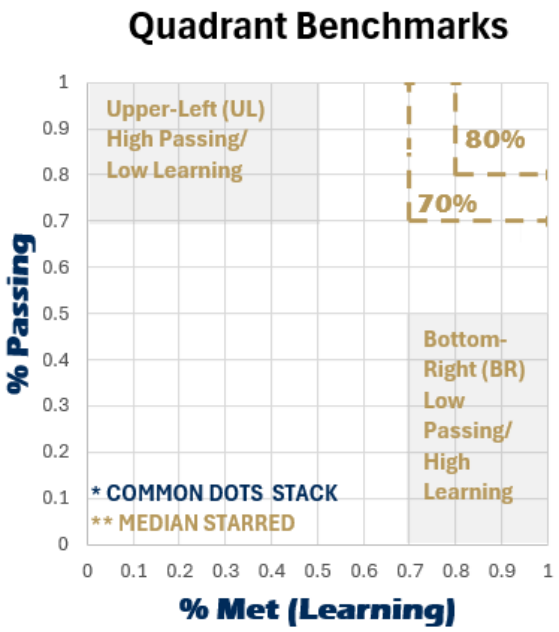
Attendance adjustments (Punctuality):

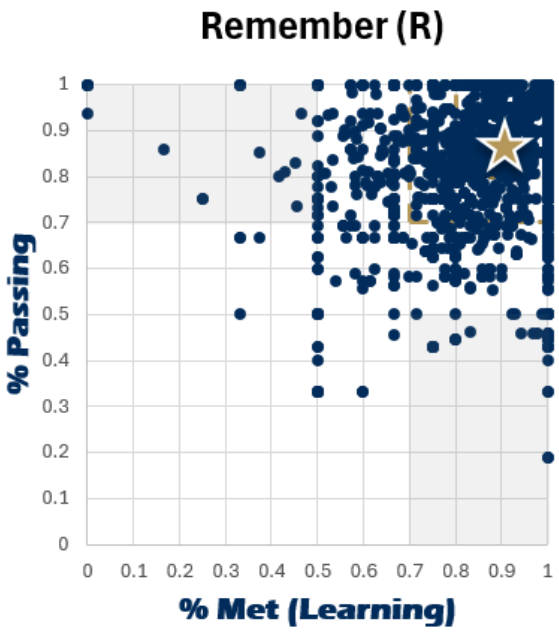
- **Positive (UL):** Full credit for participation.
- **Negative (LR):** No credit for absences.

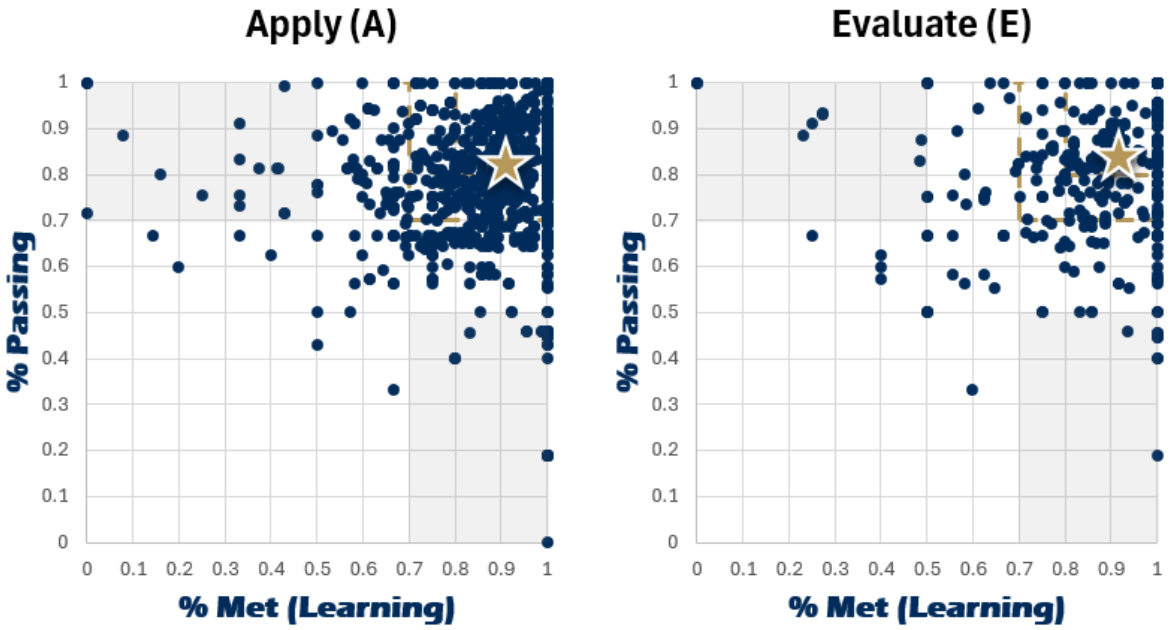
Essential Skills such as Dependability, Reliability, and Punctuality remain important for workplace readiness and should be reinforced through instruction and discussion. While grading practices can influence outcomes, curriculum decisions should prioritize demonstrated learning as the primary measure of success. Later analyses will examine these influences.

C. RAE REGRESSION ANALYSIS

Scatter diagrams by Bloom's RAE categories reveal patterns in learning and passing rates. Low level competencies (Remember) consistently exceed benchmarks, middle level competencies (Apply) show significant improvement, while high level competencies (Evaluate) remain inconsistent.







Regression coefficients (β):

- βR = 0.1605 (margin of error ± 0.0428; p-value: 2.78E-13*).
- βA = 0.0930 (margin of error ± 0.0639; p-value: 4.40E-03*).
- βE = 0.1027 (margin of error ± 0.0877; p-value: 2.19E-02*).

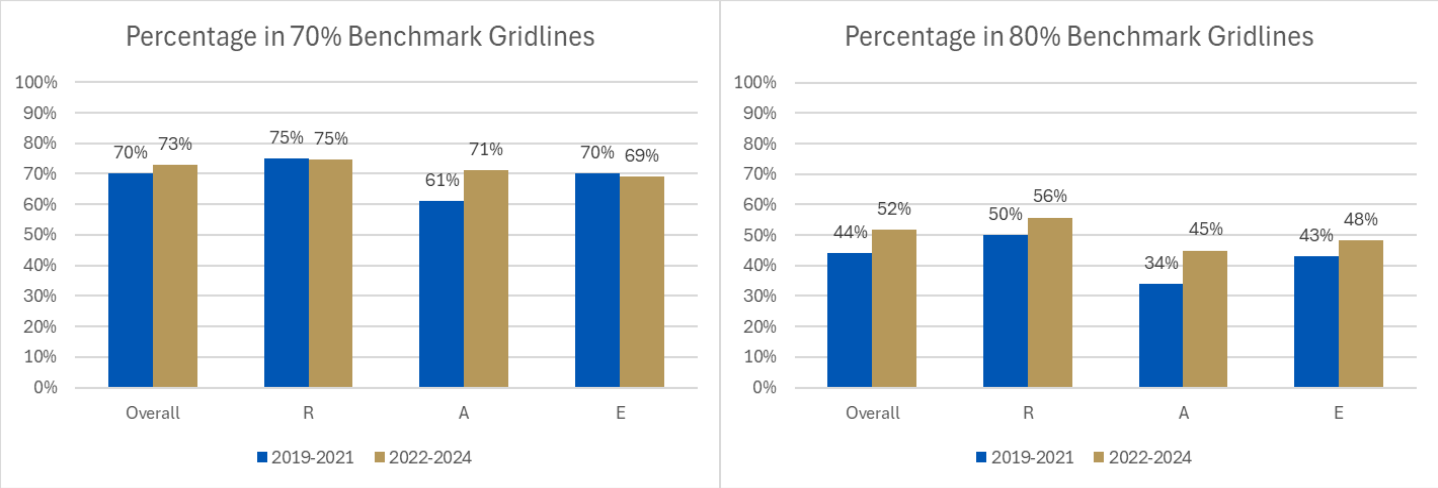
Compared to the 2019–2021 report, values for R (0.1634) and A (0.0056) fall within the margin of error, while E (0.2283) is 3.8% outside the interval, showing further reduced influence on passing rates.

Interpretation:

- **Remember (R):** Passing rates increased by about 12–20% when fully met.
- **Apply (A):** Passing rates increased by about 3–16% when fully met.
- **Evaluate (E):** Passing rates increased by about 1–19% when fully met.
    - The lower bound of the interval is near zero, so practical significance may be limited.

D. BENCHMARK QUADRANT ANALYSIS

Benchmark analysis evaluates performance by counting data points within each area and calculating the percentage for each category. A complete listing of RAE percentages for the 2022–2024 data appears later in Table 2.



Key findings:

- The Overall category grew significantly across both benchmarks (p-values: 0.0428* and 1E-06*).
- Apply (A) showed the largest growth across both benchmarks (p-values: 1.4E-10* and 5E-12*).

70% benchmark gridlines:

- Remember (R) has stabilized at this benchmark.
- Barton meets the standard benchmark in all categories except Evaluate (E), which is slightly below by 0.8%.

80% benchmark gridlines:

- Remember (R) increased significantly by 6% (p-value: 0.0002*).
- Evaluate (E) increased significantly by 5% (p-value: 0.0021*)
- Overall, half of the data points meet the baseline benchmark. Apply and Evaluate fall short by 5.1% and 1.7%, respectively.

1. PRIOR REPORT PRIORITIES

The 2019–2021 report set a priority to strengthen Remember (R) level competencies. This goal was achieved with a statistically significant increase of 6% (p-value: 0.0002*) in the 80% benchmark gridlines. This success demonstrates Barton's ability to meet defined learning goals and provides confidence that current priorities, supported by data driven strategies and faculty collaboration, are attainable.

2. COURSE ASSESSMENT DOCUMENTATION

The following table summarizes the percentage of competencies by Bloom level for which faculty documented targeted curricular adjustments in the Course Assessment Reports. These reports require instructors to name specific competencies, provide empirical data, and describe the changes they will implement to improve them.

	2022	2023	2024
Remember (R)	29%	20%	18%
Apply (A)	34%	31%	24%
Evaluate (E)	15%	13%	12%

Table 1: Gives the percentage of competencies by Bloom level for which faculty documented curricular adjustments.

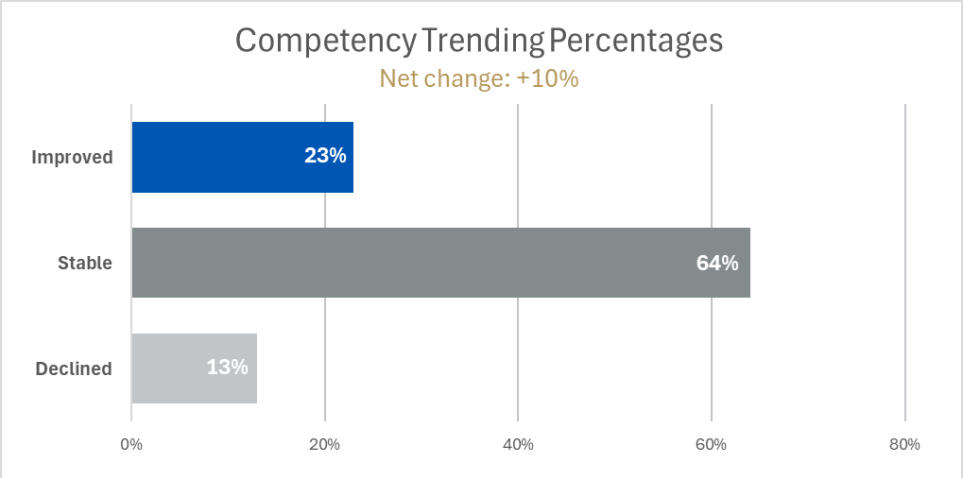
Key findings:

- Apply (A) received the greatest emphasis across all years (p-value: 0.039*), indicating faculty attention to middle level cognitive skills.
- Evaluate (E) remained the lowest priority, highlighting an opportunity for improvement.

Compared to the 2019–2021 report, the shift toward Apply indicates that Remember (R) level competencies have stabilized and faculty are now focusing on middle level competencies.

3. COMPETENCY TREND ANALYSIS

The comparison of competency performance across 2019–2021 and 2022–2024 highlights statistically significant trends rather than simple score changes.



Key findings:

- The net positive trend reflects successful implementation of data informed strategies and sustained gains in priority areas.
- Combined with regression and quadrant analyses, these findings strengthen confidence that curricular changes guided by program learning outcomes are producing measurable and lasting improvements in student learning outcomes.

E. OUTLIER QUADRANT ANALYSIS

To examine alignment between learning and passing rates, competencies were grouped into quadrants based on benchmark performance. The Other category represents all remaining data points not found in the listed quadrants.

	R	A	E
Upper right (UR)	74.76%	71.04%	69.17%
Upper left (UL)	1.79%	3.36%	2.22%
Lower right (LR)	1.14%	1.68%	2.50%
Other	22.32%	23.92%	26.11%
TOTAL	100.00%	100.00%	100.00%

Table 2: Distribution of competencies across quadrants (UR, UL, LR, Other) for each Bloom level.

Key findings:

- Most competencies cluster in the upper right (UR) quadrant, confirming strong alignment between learning and passing rates.
- The variation in the upper left (UL) quadrant by Bloom level is significant (p-value: 0.0003*).
- Apply (A) has a slightly higher proportion in the upper left (UL) quadrant.
- The lower right (LR) distribution variation by Bloom level is not significant (p-value: 0.0935).

IV. INSTRUCTIONAL REVIEWS

Instructional Reviews from 2022–2024 show how Barton applied program level data to guide curriculum improvements. These reviews highlight faculty collaboration informed by longitudinal trends. Faculty examined results, identified growth opportunities, and implemented strategies that strengthened program learning outcomes across the curriculum.

Department actions:

- **Course resequencing**: Adjusted course order to reinforce foundational learning before advancing to high level skills.
- **Instructional modalities**: Adopted flipped and hybrid formats to increase opportunities for skill practice and application.
- **Assessment design**: Revised assignments and exams to improve measurement accuracy and alignment with program learning outcomes.
- **Collaborative alignment**: Coordinated curriculum mapping of competencies to ensure consistency across courses.

Improvements were achieved through faculty collaboration across departments, ensuring alignment and consistency in curriculum design.

Documented improvements:

- **Nursing**: Re-sequenced Medical-Surgical Nursing (Med-Surg) content to support Practical Nursing (PN) to Associate Degree in Nursing (ADN) transition, improving completion rates.
- **Emergency Medical Services (EMS)**: Redesigned course delivery, implemented adaptive testing, and reconfigured lab skills; first-time practical pass rates trended upward.
- **Medical Laboratory Technology (MLT)**: Introduced comprehensive clinical exams and increased clinical hours, contributing to improved discipline scores and higher ASCP pass rates.
- **Information Technology (IT)**: Revised homework to require student generated explanations, corrected auto-grading errors, and removed a misaligned competency.
- **Education**: Aligned course materials with district technologies and statewide requirements.
- **Social Sciences**: Transitioned to Open Educational Resources (OER), improved competencies, and revamped theory coverage and capstone projects.
- **English**: Standardized resources and aligned assessments through cross-course faculty collaboration.

These actions demonstrate Barton's commitment to improvement by applying evidence-based practices and ensuring students receive a consistent, high-quality curriculum.

V. CONCLUSIONS AND FUTURE PRIORITIES

The report demonstrates measurable progress in program learning outcomes and advancement toward defined benchmarks. Faculty can make the greatest impact by reinforcing middle level competencies, Apply (A), before moving to high level skills, Evaluate (E). This approach helps students build the abilities needed for success in application and evaluation tasks.

Future priorities:

- **Sustain gains:** Strengthen middle level competencies through problem solving tasks and integrated assessments that require students to apply concepts in new contexts. Continue monitoring benchmark attainment and faculty interventions through Course Assessment Documentation.
- **Address outliers:** Reduce upper left (UL) outliers by improving alignment between learning and passing rates, with a continued focus on middle level competencies. Progress will be measured by tracking outlier quadrant distributions in future reports and confirming alignment through Instructional Review and Individual Program Assessment Reports.

These priorities build directly on documented evidence and observed trends, reinforcing gains in middle level competencies and addressing alignment issues identified in quadrant analysis. They ensure future actions remain informed by assessment data and connected to curriculum improvements documented through Instructional Reviews, with progress driven by continued faculty collaboration.

Barton values student learning alongside course success, and the analyses confirm advancement across Bloom levels. Continued attention to these areas will help sustain progress and reduce variability. These priorities affirm Barton's mission to deliver exceptional and affordable learning opportunities and its vision for leadership in teaching and innovation.