# RESEARCH BRIEF

## The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to First Semester GPA

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**Scott Massey, PhD, PA-C**

With over three decades of experience in PA education, Dr. Massey is a recognized authority in the field. He has demonstrated his expertise as a program director at the esteemed Central Michigan University and as the research chair in the Department of PA Studies at the University of Pittsburgh. Scott's influence extends beyond practical experience; he has significantly contributed to accreditation, assessment, and student success. His innovative methodologies have guided numerous PA programs to ARC-PA accreditation and have improved program outcomes. His predictive statistical risk modeling has enabled schools to anticipate student results. Dr. Massey has published articles related to predictive modeling and educational outcomes. He has also conducted longitudinal research in stress among graduate Health Science students. His commitment to advancing the PA field is evident through participation in PAEA committees, councils, and educational initiatives.

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**Rajat Chadha, PhD**

Dr. Chadha, with a PhD in Education from Indiana University, Bloomington, is an expert psychometrician with more than 14 years of extensive experience working on multiple significant projects. Dr. Chadha has worked as a psychometrician in high-stakes certification for physicians in the United States. He has also worked on predictive risk modeling for Physician Assistant programs and has published book chapters and peer-reviewed articles in leading journals.

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**Additional Information**

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# Research Brief: The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to First Semester GPA


## Abstract

This study investigated the predictive validity of the PA-CAT Composite score for first-semester GPA in Physician Assistant (PA) programs. Data from seven cohorts across three programs (n=337) were analyzed using Pearson correlation coefficients. PA-CAT Composite scaled scores (n=247) demonstrated a significant positive correlation with first-semester GPA ($r = 0.493$, $p < .001$), while Composite percentage scores (n=90) also showed a significant positive correlation ($r = 0.310$, $p < .01$). Cohort-level analyses revealed significant correlations in five cohorts and negligible correlations in two, with a median correlation of 0.546. Quintile analyses further indicated that average GPA increased consistently with higher PA-CAT Composite scores. These findings suggest that the PA-CAT is a meaningful predictor of early academic performance in PA programs. Limitations include reliance on data from only three programs and potential variability in GPA calculation across institutions.


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### Physician Assistant College Admissions Test (PA-CAT)

The PA-CAT is a discipline-specific assessment consisting of 240 items that evaluate knowledge and application across nine prerequisite science subjects critical for success in the rigorous Physician Assistant (PA) curriculum. It was designed specifically for PA educators and admissions committees to enhance holistic admissions practices.

From its launch on May 1, 2020, through July 31, 2025, the PA-CAT has been administered to 5,799 examinees. Each examinee receives a composite scaled score, representing overall performance across all items, along with three subject-specific scaled scores in Anatomy & Physiology, Biology, and Chemistry. The composite score demonstrates exceptionally high reliability (0.939), making it a robust measure of prerequisite science knowledge and application skills, as well as a strong predictor of success in PA program coursework.

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## 1. Data

Data from three Physician Assistant (PA) programs, representing seven cohorts, were aggregated to evaluate the predictive strength of PA-CAT Composite scores for first-semester GPA in PA programs. The dataset included four cohorts from one program, one cohort from a second program, and two cohorts from a third program (Table 1).

Analyses were conducted using IBM SPSS Statistics (version 29). PA-CAT Composite scaled scores were available for students in Programs 1 and 2 (n = 247), while Program 3 students (n = 90) had composite percentage scores (Table 2). Descriptive statistics are reported in Table 2.

***Table 1: Programs and cohorts***

| Program and Cohort | Number of Students | Frequency Percent |
|---|---|---|
| Program 1 Class of 2023 | 53 | 15.7 |
| Program 1 Class of 2024 | 53 | 15.7 |
| Program 1 Class of 2025 | 50 | 14.8 |
| Program 1 Class of 2026 | 55 | 16.3 |
| Program 2 Class of 2024 | 36 | 10.7 |
| Program 3 Class of 2021 | 48 | 14.2 |
| Program 3 Class of 2022 | 42 | 12.5 |
| Total | 337 | 100.0 |

***Table 2: Descriptive Statistics***

| Score | Frequency | Minimum | Maximum | Mean | Standard Deviation |
|---|---|---|---|---|---|
| PA-CAT Composite Scaled Score | 247 | 458 | 603 | 522.2 | 27.7 |
| PA-CAT Composite Percentage | 90 | 33.89 | 73.00 | 49.93 | 7.77 |
| First-semester GPA | 337 | 2.67 | 4.00 | 3.60 | 0.33 |

## 2. Correlation between First-Semester GPA and PA-CAT Composite Scores

Pearson's correlation coefficient measures the strength of the linear relationship between two variables. In the aggregate dataset, the correlation between PA-CAT Composite scaled scores and first-semester GPA was positive (r = 0.493, n = 247) and statistically significant ($p < .001$). Similarly, for the aggregate dataset comprising two cohorts from one program, the correlation between PA-CAT Composite percentage scores and first-semester GPA was positive (r = 0.310, n = 90) and statistically significant ($p < .01$).

To account for differences in how PA programs measure didactic performance, correlations were also analyzed separately by cohort. Results showed positive and statistically significant correlations in five cohorts, with negligible correlations in two cohorts. All Pearson correlation coefficients are reported in Table 3. The median correlation between PA-CAT Composite scores and first-semester GPA across cohorts was 0.546.

***Table 3: Pearson's correlation coefficients between PA-CAT Composite scores and First-Semester GPA***

| Program and Cohort | Pearson's Correlation Coefficient | Sample size |
|---|---|---|
| Program 1 Class of 2024^^ | 0.703** | 53 |
| Program 1 Class of 2025^^ | 0.606** | 50 |
| Program 1 Class of 2026^^ | 0.606** | 55 |
| Program 3 Class of 2021^ | 0.546** | 48 |
| Program 1 Class of 2023^^ | 0.458** | 53 |
| Program 2 Class of 2024^^ | 0.065 | 36 |
| Program 3 Class of 2022^ | 0.045 | 42 |

** Correlation is statistically significant at the 0.01 level (2-tailed).
^ PA-CAT Composite percent scores were used for calculating the correlation coefficient.
^ PA-CAT Composite Scaled Scores were used for calculating the correlation coefficient.

Scatterplots illustrating these relationships are presented in Appendix A.

### 3. First-Semester GPA and PA-CAT Composite Scaled Score Range

PA-CAT Composite scaled scores were divided into quintiles. The average first-semester GPA for students in each quintile is shown in Figure 1. Results indicate that average GPA increases consistently with higher PA-CAT Composite scores.

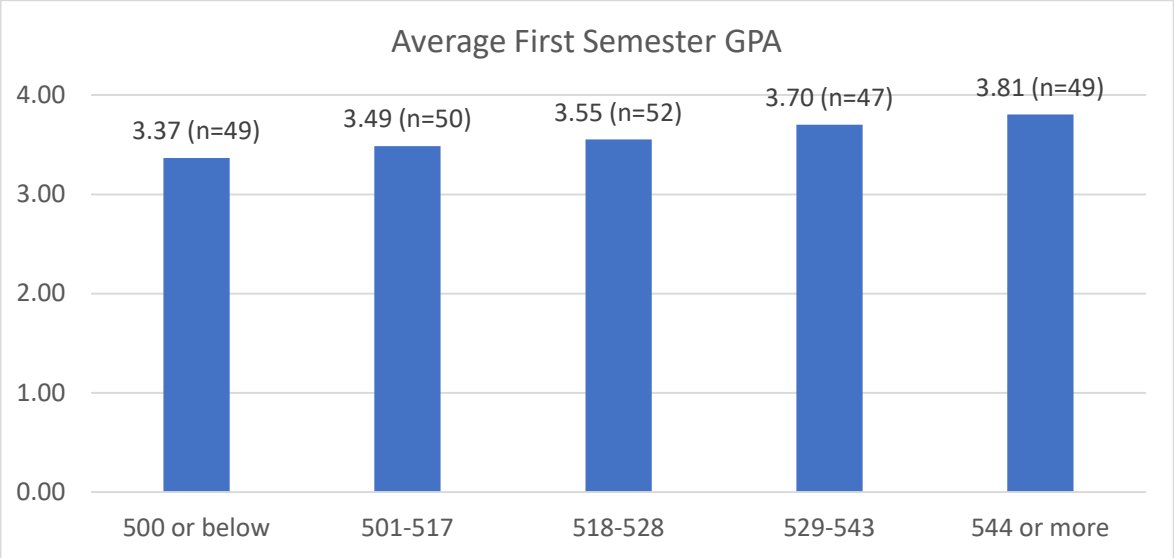
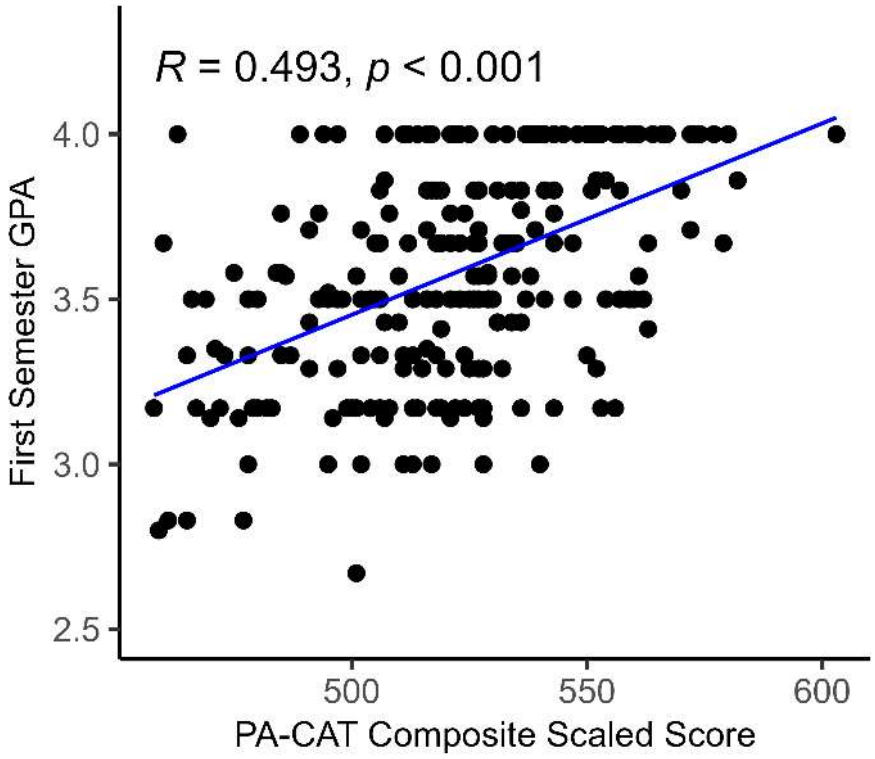


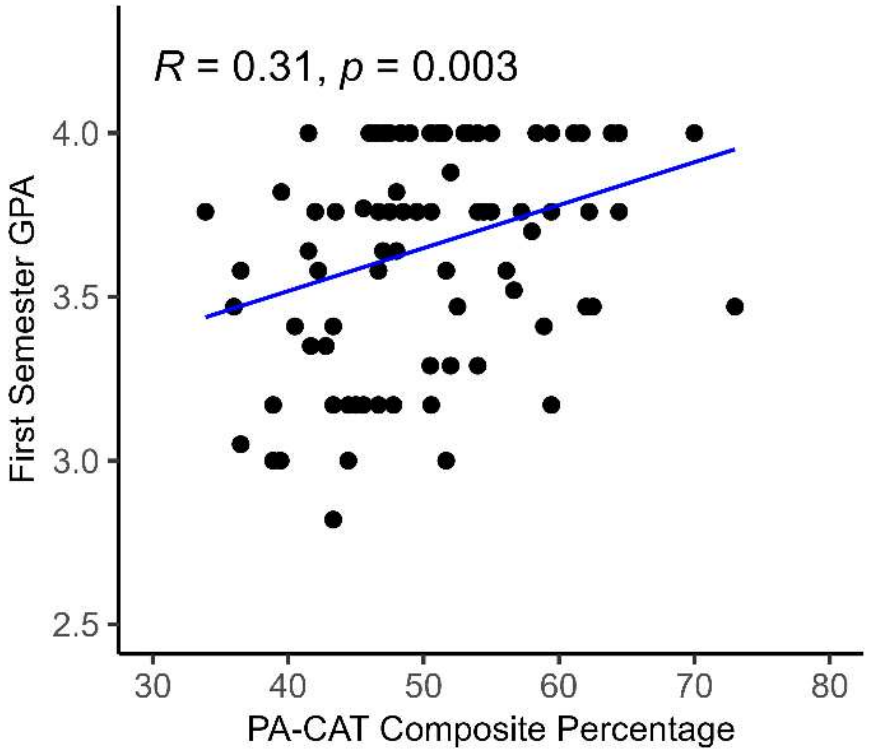

***Figure 1: Average first-semester GPA by PA-CAT Composite Scaled Score***

### 4. Limitations

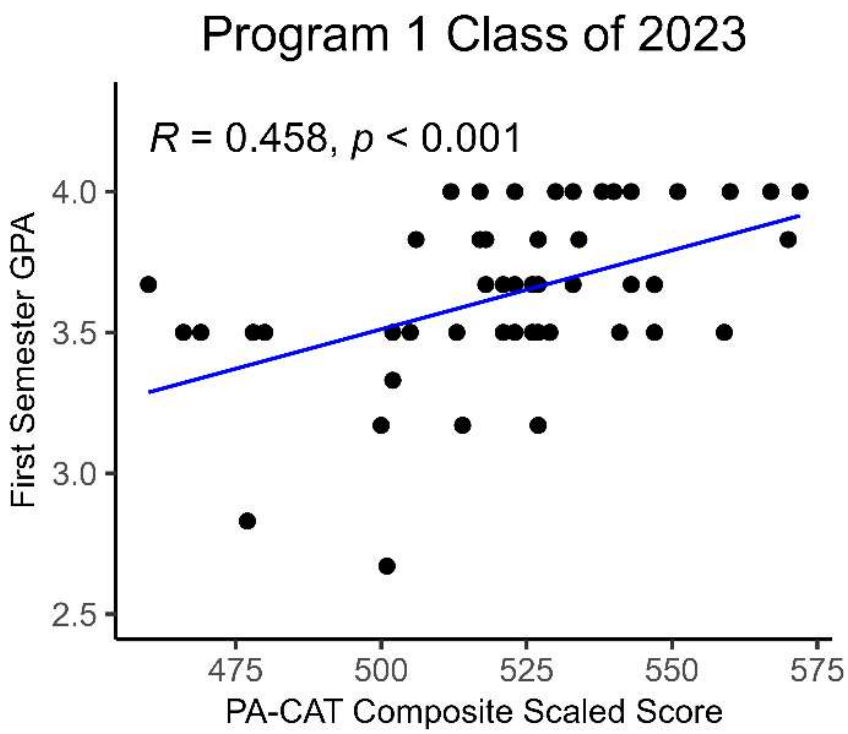
The aggregate dataset included seven cohorts drawn from three PA programs. These findings may not be generalizable to other programs or even to additional cohorts within the same institutions. Furthermore, differences in how first-semester GPA is defined and calculated across programs and cohorts may introduce additional variability.

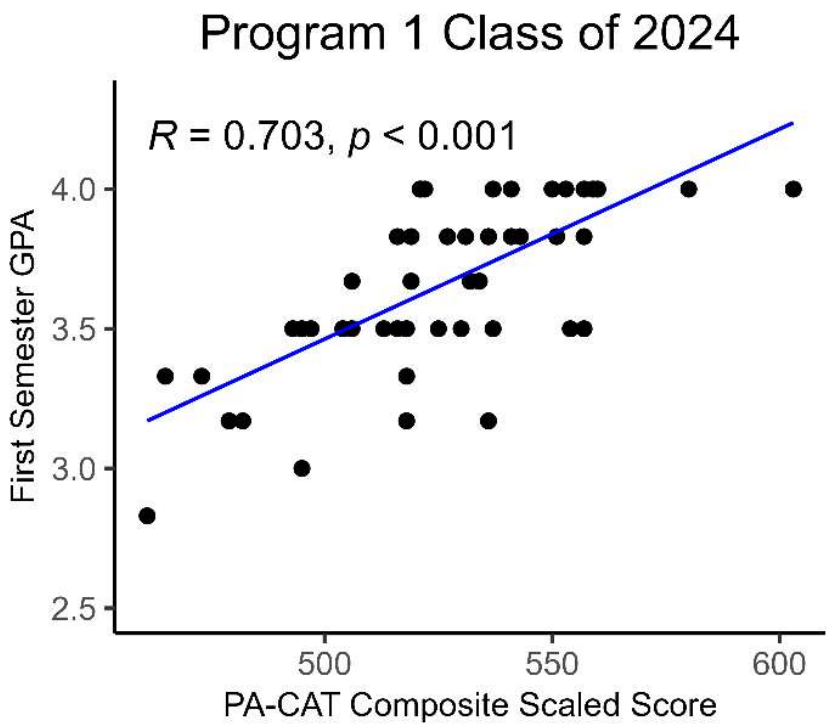
## Appendix A: Scatter Plots (Aggregate Data)

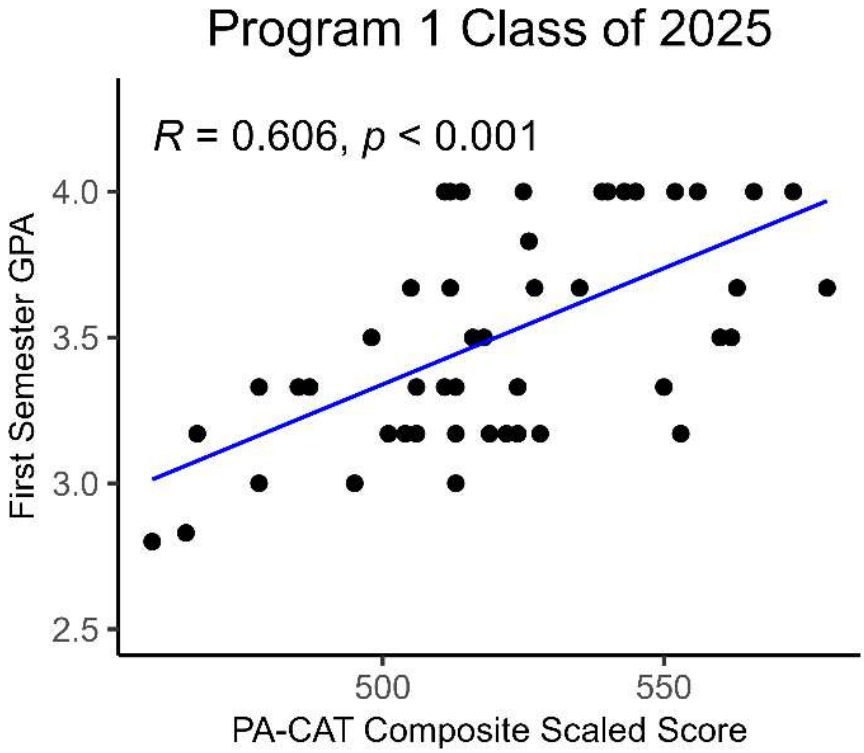


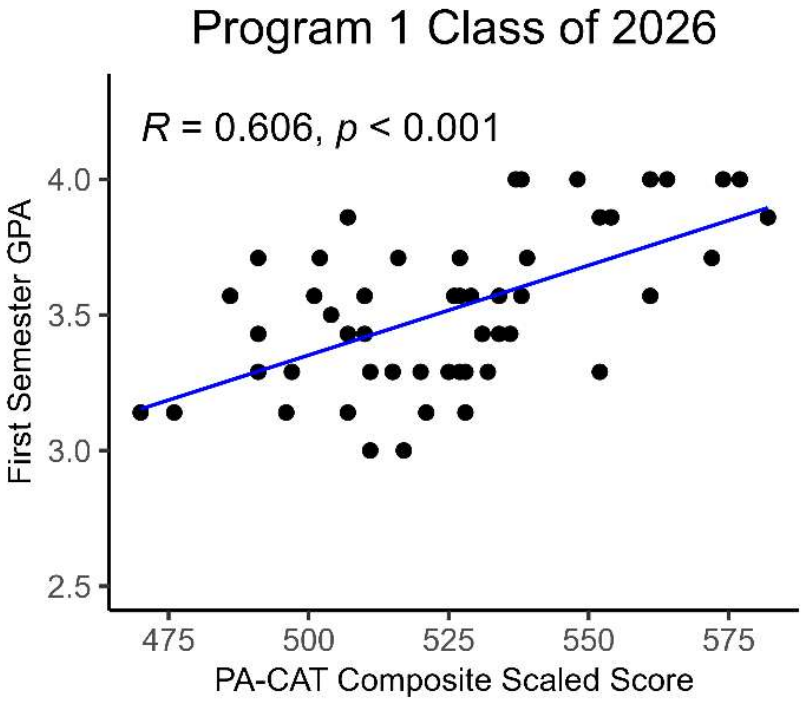



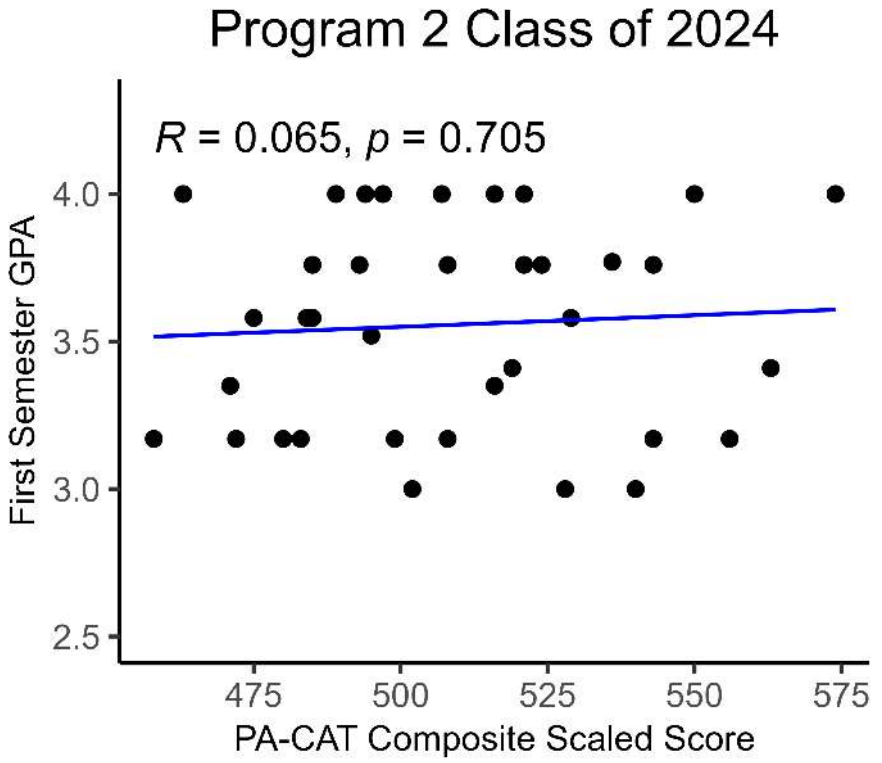
**Appendix B: Scatter Plots (By Cohort)**

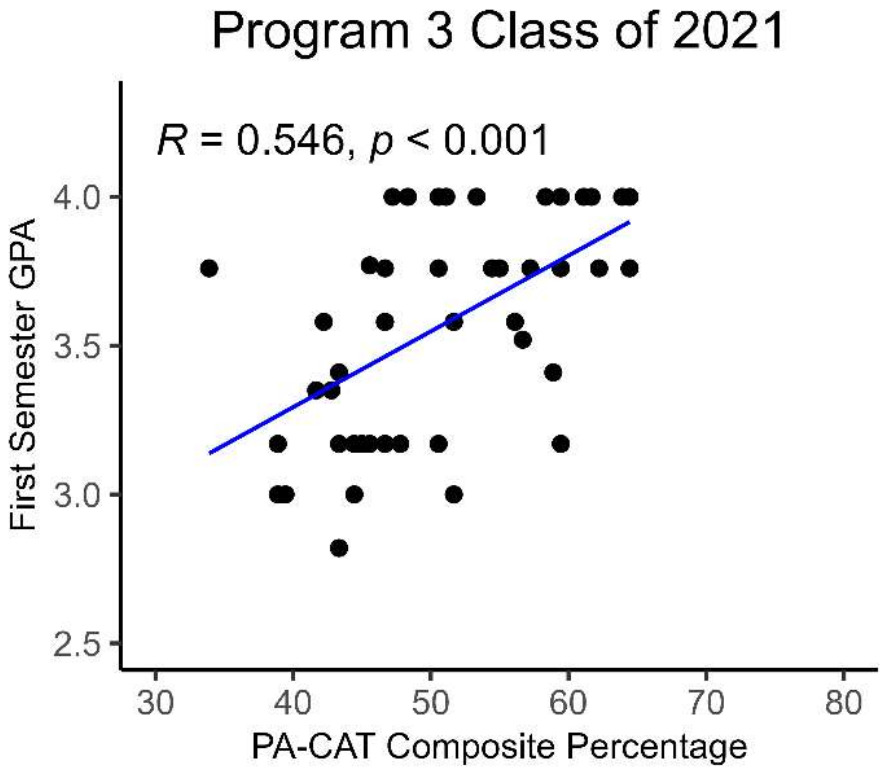


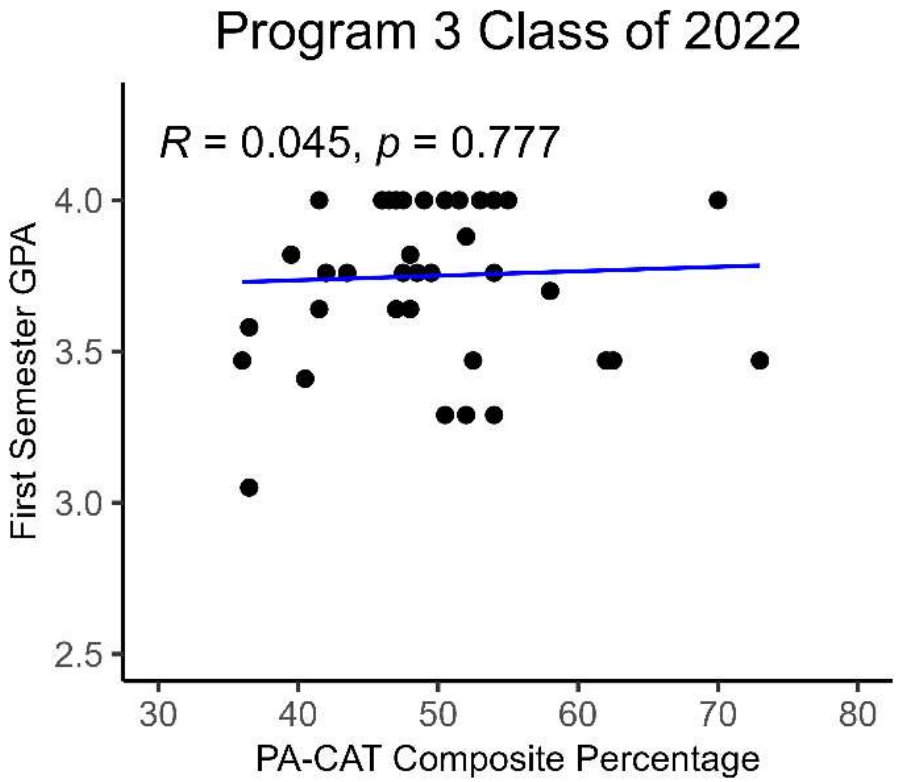




Program 1 Class of 2025
R = 0.606, p < 0.001
First Semester GPA
4.0
3.5
3.0
2.5
500
550
PA-CAT Composite Scaled Score


Program 1 Class of 2026
R = 0.606, p < 0.001
First Semester GPA
4.0
3.5
3.0
2.5
475
500
525
550
575
PA-CAT Composite Scaled Score


Program 2 Class of 2024
R = 0.065, p = 0.705
First Semester GPA
4.0
3.5
3.0
2.5
475
500
525
550
575
PA-CAT Composite Scaled Score


Program 3 Class of 2021
R = 0.546, p < 0.001
First Semester GPA
4.0
3.5
3.0
2.5
30
40
50
60
70
80
PA-CAT Composite Percentage


Program 3 Class of 2022
R = 0.045, p = 0.777
First Semester GPA
4.0
3.5
3.0
2.5
30
40
50
60
70
80
PA-CAT Composite Percentage