

RESEARCH BRIEF

The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to 2025 Cohort Didactic Year Performance at University of Nevada, Reno Physician Assistant Program

University of Nevada, Reno: Class of 2025 Report
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**University of Nevada
Reno School of Medicine
PA Studies Program
18600 Wedge Pkwy
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Mission:

The mission of the University of Nevada, Reno School of Medicine Physician Assistant (PA) Studies Program is to train flexible and committed primary care clinicians dedicated to strengthening health care in their communities.

Director: Brian S. Lauf, DMSc, PA-C, DFAAPA



In 2015, Dr. Lauf joined the University of Nevada, Reno School of Medicine as the Founding Program Director of the developing Physician Assistant (PA) Studies Program. Brian is a graduate of the charter class at Oregon Health Sciences University (OHSU) in Portland, Oregon. After graduating and returning to Nevada, Brian was fortunate to practice in a rural clinic alongside a seasoned rural physician for several years. In 2000, Brian earned a Master of PA Studies from the University of Nebraska. In 2020, Brian completed a Doctor of Medical Sciences (DMSc) degree from the University of Lynchburg. Throughout his career, Brian has been a lifelong learner and has continuously pursued the

evolution of PAs in clinical medicine, leadership, and health information technology, while also being an entrepreneur in the business of health care.

Dr. Lauf's commitment to the PA profession is evident in his numerous leadership roles. He has served as President of the Nevada Academy of PAs (NAPA) in 2001, 2020, and 2024 and has chaired the Government Affairs Committee. His advocacy for the PA profession extends to the national level, where he has served several terms as Delegate/Chief Delegate to the AAPA HOD. He is also a Commissioner of the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA).

Julie Thomas, M.S., DMSc, PA-C, DFAAPA



Dr. Thomas is an Associate Professor in the Physician Assistant Studies Program at the University of Nevada, Reno School of Medicine, where she also serves as the Director of Curriculum. Julie earned a Doctor of Medical Science (DMSc) degree from Rocky Mountain University of Health Professions in 2022, a Master of Science in Physician Assistant Studies from the University of New England in 2002, and a Bachelor of Science in Kinesiology from the College of William and Mary in 1998. In addition to her academic appointments, Dr. Thomas practices Psychiatry as a Physician Assistant at Renown Regional Medical Center in Reno, Nevada. She has previously practiced Family Medicine, Gastroenterology, and Surgery.

Dr. Thomas is an active member of several professional organizations, including the American Academy of PAs, Nevada Academy of PAs, and the PA Education Association, where she has contributed to several conferences and workshops. With a career spanning over two decades, Dr. Thomas brings a wealth of experience and expertise to her role. Her dedication to both education and clinical practice underscores her commitment to advancing the PA profession.

Jeffrey S. Weinert, PhD



Dr. Weinert is an Assistant Professor at the University of Nevada, Reno School of Medicine, where he has worked since September 2022. With over 22 years of experience, he specializes in educational technology, instructional design, and academic assessment. Jeff served as the Coordinator of Academic Assessment, a role he has held since 2012, focusing on enhancing instruction, curriculum alignment, and developing online assessment methods. He has been a part-time Professor of Biology at Truckee Meadows Community College since 2002, teaching in several formats, including in-person, online, and flipped classrooms. Jeff has taught high school and hands-on science and is passionate about STEM education, frequently volunteering to conduct science demonstrations to inspire young minds.

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.

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. 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.

Additional Information

If you would like to ask questions about the research brief, access to the full research study, or express interest in participating in future research studies, reach out to:

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Research Brief: The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to 2025 Cohort Didactic Year Performance at the University of Nevada Reno Physician Assistant Program

Abstract

The current research study investigated the relationship between PA-CAT scores and didactic year performance in the PA program for the class of 2025 ($n = 23$) at the University of Nevada, Reno. Results indicate that the PA-CAT composite score has a statistically significant ($p < .05$) positive correlation with performance in Anatomy, Physiology, Pathophysiology, Basic Science in Clinical Medicine, and Clinical Skills I. These findings suggest that the PA-CAT is a good predictor of performance in the didactic year of the PA program.

Physician Assistant College Admissions Test (PA-CAT)

The PA-CAT is a specialized discipline-specific assessment consisting of 240 test items designed to measure knowledge and application in nine prerequisite science subjects necessary for success in the demanding Physician Assistant (PA) curriculum. The PA-CAT has been developed specifically for use by PA educators and their admissions departments as part of a holistic admissions process.

As of July 20, 2024, the assessment has been administered to 4,315 examinees since it was first administered on May 1, 2020. One composite scaled score based on all items comprising the assessment and three subject scaled scores (Anatomy & Physiology, Biology, and Chemistry) are reported for each examinee. The reliability of PA-CAT composite scaled scores is very high (0.939), indicating that the PA-CAT composite scaled scores are very dependable. This means that it is highly likely that the PA-CAT examinees with higher scaled scores have higher knowledge and application skills in the prerequisite science subjects.

Relationship between PA-CAT Composite Score and Performance in Physician Assistant Program

The relationship between PA-CAT composite score and performance in the PA program at the University of Nevada Reno was investigated by calculating the Pearson correlation coefficient and the associated statistical significance. These are discussed next, along with the interpretation of the strength of the relationship in terms of the size of the correlation coefficient.

Correlation Coefficient

Correlation coefficient quantifies the degree of relationship between two variables. Its value can range from -1 to +1. A positive value implies that when one variable increases, the other tends to increase. A negative value implies that when one variable increases, the other tends to decrease. A value of 0 implies that there is no discernible linear relationship between the variables.

The knowledge of the relationship between two variables can be useful in predicting one variable based on the other, especially if one variable is observed before the other. At the University of Nevada, Reno, the PA-CAT composite score has a positive correlation with Anatomy, Physiology, Basic Science in Clinical Medicine, Clinical Skills I, and Pathophysiology. Students with higher PA-CAT composite scores are expected to perform better in these courses compared to students with lower PA-CAT composite scores.

Statistical Significance

Statistical significance is determined using the *P* value: the probability of observing a correlation coefficient by chance if the actual coefficient is 0. For example, if the *P* value associated with a correlation coefficient is 0.082, the probability of observing this or a higher absolute correlation coefficient by chance is 8.2% ($8.2 / 100 = 0.082$), given that the actual coefficient is 0. A correlation coefficient is statistically significant if the *P* value is lower than the probability that the decision makers consider too low to be by chance only. This threshold value is referred to as significance level, or alpha. One of the most common conventional alpha values used in educational settings is 0.05, also referred to as 5% significance level. When more conservative decision-making is desired, a lower alpha value of 0.01 (1% significance level) is used.

The correlation of PA-CAT composite score with performance in the PA program is statistically significant at the 5% significance level for several variables.

Size of the Correlation Coefficient

A higher absolute correlation coefficient indicates a stronger relationship between two variables and better prediction of one variable based on another. There are general guidelines on the interpretation of the strength of relationships (Cohen, 1988; Cohen, 1992) in terms of the size of correlation coefficient. A correlation coefficient of around 0.100 is considered small, 0.300 is considered medium, and 0.500 or greater is considered large.

Correlation coefficients between PA-CAT composite score and PA program performance variables, *P* values associated with the coefficients, and the interpretation of the size of the relationship are reported in Table 1.

The size of the correlation coefficients of PA-CAT composite score with Anatomy, Physiology, Basic Science in Clinical Medicine, Clinical Skills I, and Pathophysiology at the University of Nevada Reno are large. In other words, PA-CAT composite score is very useful in predicting the performance of applicants in these courses. Other correlation coefficients in the table can be interpreted similarly. The size of the correlation coefficient is listed only when the correlation is statistically significant.

The scatter plots showing the relationship between PA-CAT composite score and the PA program performance variables are presented in Appendix A.

Table 1: Correlation between PA-CAT Composite Score and PA Program Performance

Limitations

	Correlation with PA-CAT Composite score	P value	Statistically Significant (5% level)?	Size of the Correlation Coefficient
Anatomy	0.513	p = 0.012	Yes	Large
Physiology	0.500	p = 0.015	Yes	Large
Basic Science in Clinical Medicine	0.536	p = 0.008	Yes	Large
Emergency Medicine	0.111	p = 0.614	No	Small
Pharmacology	0.339	p = 0.113	No	Medium
Adult Medicine	0.367	p = 0.085	No	Medium
Behavioral Medicine	0.284	p = 0.189	No	Small
Clinical Skills I	0.505	p = 0.014	Yes	Large
Technical Skills	0.228	p = 0.294	No	Small
Pathophysiology	0.686	p < 0.001	Yes	Large

A limitation of this research study is that the findings are based on a small sample (n = 23) from a single cohort at one PA program and may not be generalizable to other cohorts at the same institution or to other PA programs.

Appendix A: Scatter plots – Relationship between PA-CAT Composite Score and PA Program Performance





