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The Admissions Criteria for Professional Athletic Training Programs: A 2018 Review of Post-Baccalaureate Degrees

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Purpose: Athletic training education has advanced its professional degree to an entry level masters; a decision motivated by professional health education developments over the last 10 years. In respect to Commission on Accreditation of Athletic Training Education (CAATE) accreditation standards as well as evolutionary changes in athletic training education, current prerequisite expectations of entry level applicants are largely dependent upon program. Analysis of the publicly available documents via websites and other programmatic documents of professional athletic training including prerequisite classes, supplemental admissions requirements, length and credits of program, cost of attendance, and degree level of core faculty. **Methods:** 144 professional athletic training programs delivered at the graduate level, regardless of program design, as identified on the CAATE website in November 2018 were eligible for analysis. Data were collected and recorded into a custom spreadsheet by one researcher regarding program characteristics, admission requirements, costs, and core faculty descriptors. Descriptive analyses were performed. **Results:** Most of the programs (n=96, 66.7%) were active and in good standing with the CAATE. Admissions requirements vary largely by programs with 54.9% (n=142) requiring biology, 69.7% (n=142) requiring chemistry, 65.5% (n=142) requiring physics, 81.0% (n=142) requiring psychology, 99.3% (n=142) requiring anatomy, and 99.3% (n=142) requiring physiology. The average required observation hours were 48+40 with a range of 0 to 200 (n=141). Prerequisite GPA requirements varied from 2.0 to 3.40 with a mean of 2.90 ± 0.23. **Conclusion(s):** Professional programs are in need of adjustment for admissions requirements to address the 2020 standards related to admissions. **Key Words:** *curriculum, admission, professional masters*

INTRODUCTION

In May of 2015, the Athletic Training Strategic Alliance comprised of the National Athletic Trainers' Association (NATA), the Board of Certification (BOC), the Commission on Accreditation of Athletic Training Education (CAATE), and the NATA Research and Education Foundation made the decision to implement an entry-level degree elevation for the profession of athletic training.¹ As the world of healthcare is ever-changing, the decision was determined to be necessary to meet professional health education developments over the last ten years. Similar healthcare professions have made degree elevation changes within the last decade including physical therapy and occupational therapy.^{2,3} The Athletic Training Strategic Alliance looked to the effects and barriers of

these changes when considering the degree elevation and ultimately the positive results of the implementation outweighed the potential barriers.¹ The decision was made to require a professional master's degree in athletic training for learners wishing to sit for the BOC examination that would be graduating in the year 2022 or later, however current athletic trainers were not required to attain a post-professional degree at the master's level to continue clinical practice.¹ Beginning in 2023, all incoming learners that are in pursuit of a degree in athletic training must obtain the professional phase of their education at the master's level.⁴ To date, there are over 400 professional athletic training programs throughout the United States and abroad delivering their curriculum at the undergraduate and graduate levels.⁵

Admissions requirements vary across healthcare profession education programs through the direction of their individual accrediting boards such as nursing, physical therapy, and occupational therapy.^{4,6,7} The most common component in admissions requirements between these healthcare professional education programs is prerequisite courses.^{4,6,7} However, athletic training education guided by the current 2012 *Standards for the Accreditation of Professional Athletic Training Programs* (referred to as *Standards* from here on out) does not include prerequisite courses. Currently, the prerequisite courses and experiences are largely dependent upon the institution and program itself, rather than a set expectation across all accredited professional athletic training programs. However, the details of these changes will be further explained in the upcoming sections.

In respect to the CAATE's *Standards*, new provisions were adopted in January 2018 and will become effective July 2020 that include specific admissions requirements and prerequisite course work.⁴ Specific to admission requirements, Standard 28 states that a program must have an admittance record that is publicly available with stated criteria and processes.³ While each healthcare professional program requires different materials and places values on each in a different manner, a common notion of preparedness for graduate studies is suggested through the completion of the Graduate Record Examination (GRE) score, minimum grade point average (GPA) from their undergraduate degree, letter(s) of recommendation, and/or clinical observation hours. In addition, prerequisite courses, as defined in Standard 54, will include six undergraduate-level courses that will be required prior to program admission including biology, chemistry, physics, psychology, anatomy, and physiology.⁴ Moreover, Standard 55 states that the student must gain foundational knowledge in statistics, research design, epidemiology,

pathophysiology, biomechanics and pathomechanics, exercise physiology, nutrition, pharmacology, public health, and healthcare delivery and payor systems which can be addressed at the program's discretion as either a pre-admission requirement or content delivered as part of the curriculum.⁴

With the change in professional program expectations related to the admissions process and prerequisite courses for students wishing to enroll in a professional post-baccalaureate athletic training program, we believed it was necessary to highlight the current structure and characteristics of the programs that have already transitioned their program to the master's level. During the President's Address at the 2018 CAATE accreditation conference, it was identified that over 100 programs had already started a new program or elevated their previous undergraduate program, yet these programs, despite being delivered at the master's level, were accredited with the 2012 *Standards* and do not have to be compliant until their 2020 CAATE annual report.⁵ Therefore, the purpose of our study was to analyze the current professional programs that result in a master's degree in athletic training with regards to program characteristics, academic admissions requirements, and supplementary admission requirements. We believe this information may be helpful as programs seek to transition and align with other CAATE-accredited programs.

METHODS

Design

A document review was conducted of publicly available information of professional programs resulting in a master's degree in athletic training in regard to the selected 2020 *Standards* as described in Table 1. The publicly available list of professional master's programs from the CAATE was used to identify the institutions. Next, we navigated and retrieved the key information from the athletic training program website by way of navigation through official university

websites that describes the admission process and criteria for admission. In addition, application packets and other programmatic pages were explored.

Participants

In November 2018, the principal investigator reviewed the CAATE database for accredited programs with search criteria of professional program type and master's degree type. From the search of accredited programs, 144 institutions met the search criteria and were included in the analysis.

Procedures

The list of 144 professional athletic training programs were compiled using the search feature of the CAATE website. The CAATE identifies program statuses as active in good standing, seeking accreditation, degree change pending, probation, or voluntary withdrawal. From the CAATE website, program status descriptors were collected. After doing so, professional athletic training program websites were individually searched for publicly available information. Data were extracted and recorded into a custom spreadsheet (Microsoft Excel, Redmond, VA). Data points that were extracted from the website relative to the program included the admissions criteria including: required GPA, number of letters of recommendation, number of observation hours required for admission, requirement of a personal statement, GRE scores, and prerequisite classes (specific to biology, chemistry, physics, psychology, anatomy, and physiology). Program characteristics used as data points included number of terms in the professional phase of the program, degree title, costs of attendance, and core faculty degree descriptors. Program characteristics in relation to geographical region relative to the NATA districts were also cross analyzed. Table 1 identifies the CAATE *Standards* directly related to the data extracted.

Data Analysis

Descriptive statistics (mean, minimums,

maximums, modes, standard deviations, and frequencies) were analyzed for each data point. Professional programs were noted per state, and then frequency of programs was then determined per NATA district. Program status was extracted from the CAATE website. Number of semesters and credits in the professional phase of the program were recorded numerically. Required GPA, number of letters of recommendation, number of clinical observation hours were recorded numerically. Personal statements were recorded as true or false criteria. GRE scores were recorded numerically, and programs requiring GRE were recorded as true or false criteria. For each individual pre-requisite class, true or false criteria per program was recorded. Cost of attendance was recorded numerically as well as program fees. The degree level of the clinical coordinator and program director was recorded as the abbreviation for their degree title. Programs with missing data points were included in the analysis with the intent to analyze all data points as completely as possible as well as to display the most complete picture of the current state of professional master's programs by understanding that not all data collected was reported per program.

RESULTS

CAATE Standing and Program Characteristics

Most of the programs (66.7%, n=96/144) were active and in good standing with the CAATE. Programs that are in good standing, seeking accreditation, or pending degree change made up 95.8% of current professional master's programs (n=138/144). A small portion (1.38%, n=2) of programs are voluntarily withdrawing accreditation or are currently on probation (2.78%, n=4). On average, professional athletic training programs offer a professional master's degree that is six semesters in duration with a total of 61 credit hours. Table 2 describes the curriculum program characteristics. Table 3 describes the degree level of program directors and clinical coordinators.

CAATE Standard	Standard Description	Data Collected in Relation to Standard
Standard 2	The program has developed, implemented, and evaluated a framework that describes how the program is designed to achieve its mission and that guides program design, delivery, and assessment.	Curricular framework limited to semesters and credits in professional program
Standard 20	Professional programs result in the granting of a master's degree in athletic training. The program must be identified as an academic athletic training degree in institutional publications.	Degree awarded upon graduation
Standard 23	The institution/program has written policies and procedures that ensure the rights and responsibilities of program students. These policies and procedures are available to the public.	Matriculation and admissions requirements
Standard 24	Prospective and enrolled students are provided with relevant and accurate information about the institution and program.	Academic curriculum and course sequence, admissions process and requirements including prerequisites, cost of tuition, cost of program fees, costs associated with program, matriculation requirements, programmatic outcomes, admissions criteria, and technical standards
Standard 28	Admission of students to the professional program is made in accordance with the program's identified criteria and processes, which are made publicly available	Admissions criteria and process
Standard 37	The program director is a full-time faculty member whose primary assignment is to the athletic training program.	Degree level of program director
Standard 38	The coordinator of clinical education is a core faculty member whose primary appointment is to the athletic training program and who has responsibility to direct clinical education.	Degree level of coordinator of clinical education
Standard 54	The professional program requires prerequisite classes in biology, chemistry, physics, psychology, anatomy, and physiology at the postsecondary level.	Prerequisite classes

Table 1. CAATE Standards, descriptions, and data collected for document review

Program Characteristic	Mean	SD	Min	Max	Mode
Number of Semesters (n=140)	6	±1	4	13	6
Number of Credits in Program (n=139)	61	±11	38	98	N/A

Table 2. Curricular Matriculation for Professional Master's in Athletic Training Programs

Program Position	PhD	EdD	Doc Other	Master	Missing Data
Program Director (n=144)	47.9%	24.3%	9.7%	16.7%	1.4%
Clinical Education Coordinator (n=144)	38.9%	15.8%	6.9%	34.0%	4.9%

Table 3. Degree Level of Program Directors and Clinical Education Coordinators

Academic Admissions Requirements

The required prerequisite coursework during a bachelor's degree program range from 54-99% of programs requiring the class (Table 4).

Academic admissions requirements vary largely by program regarding GPA and GRE scores. Less than 50% (n=67/144, 46.5%) of programs require a GRE score for admittance, with only 13.2% (n=19/144) requiring

specific scoring standards on the GRE. Of the 13.2% requiring GRE scores, the score requirements were relatively consistent. Programs required a cumulative score of 293 with a scoring breakdown per section of 147 on verbal reasoning, 144 on quantitative reasoning, and 3.6 on analytical writing. Grade point average admission requirements across programs averaged 2.9 with a range from 2.0 to 3.4. Overall, the academic requirements varied in terms of required classes, however standardized testing scores and GPA standards were relatively consistent.

Prerequisite Courses	Percentage of Programs Requiring for Admission
Biology	54.9%
Chemistry	69.7%
Physics	65.5%
Psychology	81.0%
Anatomy	99.3%
Physiology	99.3%

Table 4. Prerequisite Course Requirements for Admission to Professional Masters Programs (n=142)

Supplementary Admissions Requirements

In regards to supplementary admission materials, programmatic expectations were again varied. The average required clinical observation hours for admissions was 48±40 hours with a range from 0 to 200 hours. Programs identified different requirements for observation hour completion with some indicating that they had to be completed with a certified and/or licensed athletic trainer and others indicating that they had to be with any healthcare professional. All but 13 programs, comprising 9.2% of total programs (n=140), did not require any letters of recommendation. Similar to observation hours, programs varied in requirements regarding letters of recommendation, determining that they could be completed by any professional, a healthcare professional, a certified and/or licensed athletic trainer, and/or a personal reference. Programs required an average of 2±1 letters of recommendation regardless of author with a minimum range of 0 and a maximum range of 3. Personal statements written by students

were required by 82.99% (n=117/141) of professional programs.

Program Cost and Location

Tuition rates were collected per program based on graduate catalog and program specific pricing as determined by the program website and/or graduate school tuition rates. Tuition rates were determined for professional programs only, and calculations for an accelerated five-year master's program model were not considered. Institutions that did not offer varied cost between in state and out of state tuition are reported as "flat rate tuition." Tuition rates and program fees are reported in Table 5. It should be noted that many programs had a specific tuition rate per credit for the graduate professional master's program that included programmatic fees in the total tuition cost. Programs were widely distributed across the United States, as seen in Table 6.

Program Financial Characteristic	Mean	±SD
In State Tuition (n=46/144)	\$21,117.52	± \$12,045.35
Out of State Tuition (n=46/144)	\$53,767.30	± \$23,380.50
Flat Rate Tuition (n=95/144)	\$44,679.40	± \$21,058.54
Program Fees (n=116/144)	\$1,463.00	± \$1,779.00

Table 5. Tuition and Fees

NATA District	Frequency
1	9
2	23
3	14
4	25
5	21
6	11
7	4
8	5
9	19
10	9

Table 6. Professional Master's in Athletic Training Programs per NATA District (n=144)

DISCUSSION

The document review was completed to determine program characteristics, academic

admissions requirements and supplementary admission requirements for professional level athletic training programs delivered at the graduate level. We sought to objectively assess the extent of how athletic training programs complied with the new 2020 *Standards* for professional master's degree programs prior to the required change, as well as determining the largest areas of deficit in a nationwide analysis. The current and future CAATE *Standards* require that programs make certain information regarding individual programs publically available.

The data from this document review has been combined into an infographic (Figure 1) to allow athletic training educators and university administrators to easily decipher the vast array of materials related to the degree transition and new professional *Standards*. Additionally, the visual representation of the gathered information can help inform institutions that are elevating their athletic training degree or starting a new athletic training program to the current educational trends respective to the profession in a quick and clear manner.

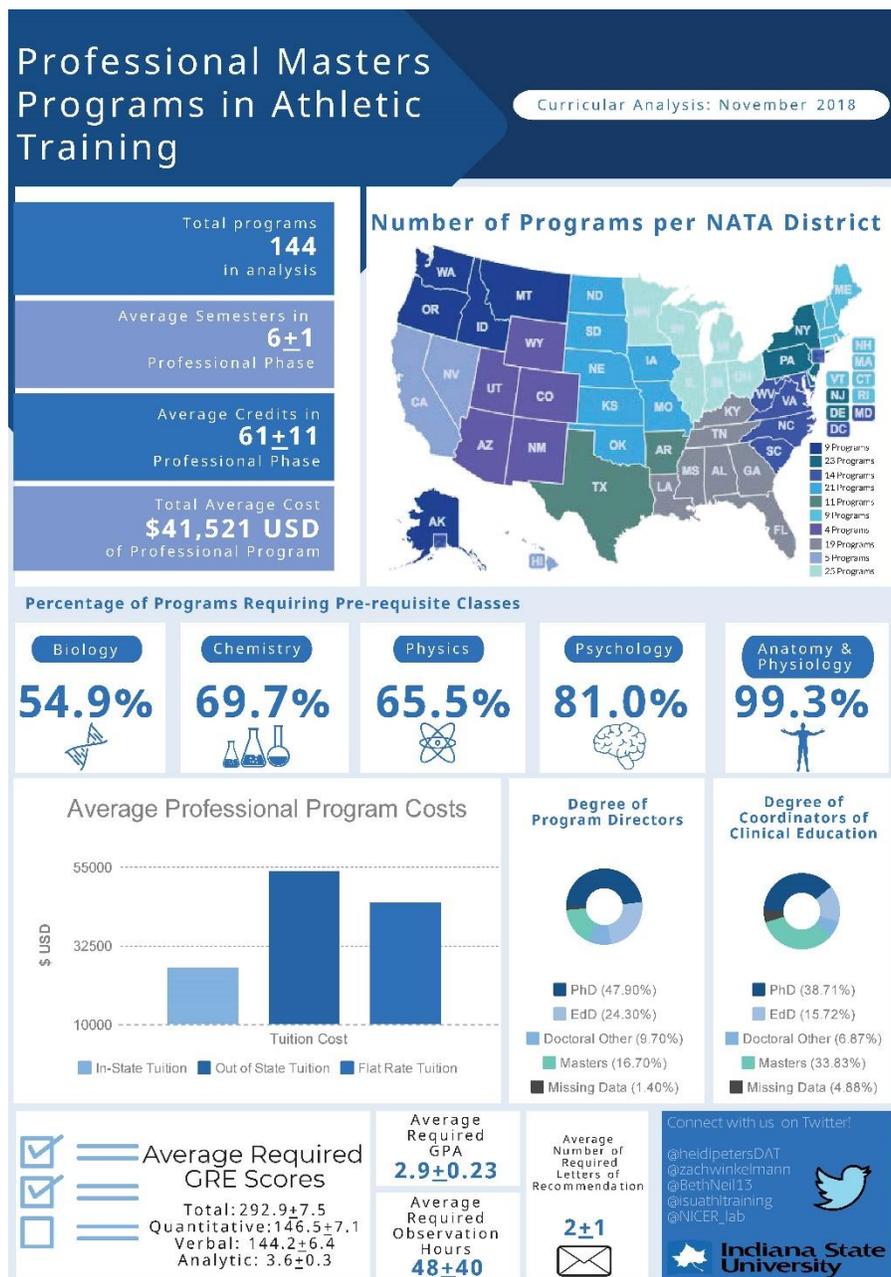


Figure 1. Infographic of Programmatic Details

Students who pursue a professional master's program are largely represented by those with undergraduate degrees in the sciences; exercise science, kinesiology, exercise physiology, and biology and enter professional master's programs with a GPA above a 3.0.¹¹ The most frequently required courses for all professional athletic training programs, regardless of delivery at the undergraduate or graduate level, are anatomy, physiology and exercise physiology, which is consistent with the findings of this study.^{8,9} An undergraduate GPA above a 3.18 is one of three main predictors of professional master's in athletic training programmatic success and currently, programs nationwide admit students with an average GPA of 2.90.¹¹ GPA as a predictor of success in professional graduate programs has a strong predictive value that those students who have a GPA above 3.2 will be most successful in professional master's athletic training programs and therefore should be considered an important admissions requirement moving forward with the 2020 *Standards*.¹⁰ While the literature demonstrates that the GPA cutoff point that predicts success in professional master's in athletic training students is slightly higher than the current average of program admittance, consideration to the standard deviation determined in this document review indicates that programs are admitting students within the range that has been determined to be predictive of success.¹⁰ The strongest predictor of success from a previous sample of 119 athletic training students enrolled in one professional master's athletic training program was the quantitative score of the GRE above 145.5 and programs that require specific scoring on the GRE have a mean required score of 144±6 on this section as demonstrated through the analysis of a sample of individual student data.¹⁰ As evidenced in the current document review, professional master's of athletic training programs that require GRE scores are limited to less than half of programs (46.5%), yet the data is directly in line with the cut off value for

predicted success of 141.5 which is in line with other educational programs.¹⁰

Traditional selection criteria should not be the only factors used when considering students' applications. Standardized criteria such as, but not limited to, GPA and GRE scores should not be stand-alone admissions criteria.¹¹ Allied healthcare professionals recognize that although academic achievement is one factor of success as a clinician, there are other characteristics of students that also predict success such as personal interviews, writing samples, and student motivation.¹¹ While difficult to quantify these traits from a standardized application, programs have the potential to use clinical observation hours requirements and letters of recommendation to aid in admission decision making. Professional master's programs require on average 48 hours of clinical observation to be completed prior to application for admission. However, there is a range of 0 to 200 hours required for programs nationwide. Observation hours for pre-athletic training students allow the students to immerse themselves in the complex roles of athletic trainers to first, help them fully understand the roles and responsibilities of athletic trainers, and secondly allows the athletic training programs to evaluate the students throughout these experiences.¹² Letters of recommendation, while not providing any substantial points to predict success of healthcare students of similar professions, provide another avenue for programs to learn about the students strengths.^{13,14} Personal statements and writing samples also allow for programs to evaluate students on self-perception as well as writing ability.¹¹ Currently, 81.25% of programs require some form of personal statement or writing sample as part of the admissions requirements, allowing admissions committees a complete perspective on the student. Programs that utilize selective admission criteria experience improved retention rates as well as a higher quality of applicant citing that the ability to

monitor the applicant through an observation hour requirement as a helpful tactic.¹⁵

As the transition to the professional master's degree is ongoing, the 2020 *Standards* now align themselves with that of prerequisite and admission requirements for Doctor of Physical Therapy programs and entry-level master's degree programs in nursing.^{7,16,17} Providing an entry-level master's degree in nursing has seen the instance of increased levels of patient care as determined by patient outcomes in hospitals as well as clinics from a variety of settings¹⁸ and the transition to the Doctor of Physical Therapy has seen an elevation in the ability of graduating students to integrate evidence-based medicine into their clinical practice.² While the athletic training degree is transitioning from the bachelors to the master's level, the profession anticipates similar outcomes.¹⁹ If the profession of athletic training desires to see similar increases in patient outcomes as well as ability of students to incorporate evidence-based medicine, athletic training education *Standards*, including admissions requirements, should and do model those of similar degree structures or health professions that have recently engaged in a degree elevation. We see through this document review that program structure is similar to the degree structure of professional Doctor of Physical Therapy programs which require on average 95±15 credits of professional coursework distributed in a range of 84-175 weeks, dependent upon program, in the professional phase of the program.¹⁹ In addition, 64.3% of Doctor of Physical Therapy programs deliver coursework in a semester-based model that involves four years of pre-professional preparation and three years of professional education.¹⁹ By evenly distributing the number of credits for a Doctor of Physical Therapy degree (95±15 total credits) throughout three years, students are taking on average 31.6 credits per year. Professional master's in athletic training programs distribute 61±11 credits throughout two

years resulted in an average of 30.5 credits per year of professional education, thus aligning us well with other healthcare professional programs. Due to the lack of current research on the analysis of didactic education in professional athletic training programs delivered at the master's level, the information above can be used as a guide to help guide through the lens of another professional healthcare curriculum.

LIMITATIONS AND FUTURE RESEARCH

Limitations of this document review include the lack of literature surrounding the curricula of athletic training programs nationwide as well as a lack of literature directly related to athletic training admissions processes in professional master's programs. While there are three main predictors of student success in professional master's programs including the analytic GRE scores, undergraduate grade point average, and having taken calculus as a prerequisite course, this review only analyzed the factors for the analytic GRE scores and undergraduate grade point average.¹⁰ Future research is necessary in the form of a full curricular review including all predictive characteristics of athletic training student and athletic training program success in the coming years as the transition to the professional master's degree continues with the 2020 *Standards*.

CONCLUSION

The success of an athletic training program is often tied to institutional and professional benchmarks such as the Board of Certification pass rate, but the purpose of this analysis was to highlight that success is a top-down initiative that involves programmatic admissions requirements, cost of attendance, length of the program, and other athletic training program characteristics.¹⁰ Selective criteria allow admissions committees time to analyze each candidate through experiences as well as multiple factors that determine quality of a student.^{8,10,11,14} Standardizing the admissions requirements through prerequisite classes could benefit athletic

training programs to become more streamlined and consistent with admissions criteria as a way to simplify the admission processes. However, currently accredited master's programs still have adjustments to make to comply with the 2020 *Standards* that will increase the overall selectivity of students admitted. It should also be noted that while selection criteria is regularly used across all programs, there is no set standard for observation hours, letters of recommendation, GRE scores, and personal writing statements which all have been determined to be predictors of success of professional master's in athletic training students.^{10,11} From this document review and available data, we recommend that programs utilize a variety of criteria including standardized requirements such as GRE scores and GPA, but also consider clinical observation hours, letters of recommendation, and personal statements as important factors that predict a student's potential for success.

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