A Programmatic Evaluation of Four-Year Equine Degree Programs in the United States

by

Jessica Lynn Brown

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Approved by

Jason McKibben, Chair, Assistant Professor of Agriscience Education
James Lindner, Alumni Professor of Agriscience Education
Christopher Clemons, Associate Professor of Agriscience Education
Adam Cletzer, Professor of Practice, Agricultural Communications and Leadership
Jillian Ford, Instructor of Agriscience Education

Abstract

The equine industry is a vast and growing segment of the United States economy that is supported by equine educational programs at the post-secondary level. The purpose of this study is to provide a programmatic evaluation of the four-year equine degree programs currently in operation. The potential for this study to inform and influence existing and emerging programs with their curricula and resource offerings could improve both the sustainability and relevance of equine programs nationwide. The quantitative data for this study was collected through the use of an online survey instrument. The instrument was sent to a department head or senior faculty member for each of the 77 institutions identified as offering a four-year equine degree program option. The data collected included the program type and objectives, curricular offerings, supporting resources, graduation rates, and characteristics of both the student and faculty populations. The findings indicate that the main objectives of a four-year equine degree program, regardless of type, should be to produce students with foundational knowledge in equine health, care, and handling, who are knowledgeable about what is currently happening in the equine industry, with the personal and professional skills needed for employment beyond academia, and who have a mindset for continued learning and education. To do this, equine programs need to offer students the time to put their theoretical knowledge into practice with hands on activities. Twenty course topics were evaluated for student success upon graduation, the two highest ranked courses were equine care and management and communications and the two lowest ranked courses for success were general reproduction and genetics. Overall, participating institutions believed that an equine industry internship was the most valuable experience a student could participate in, and that the most needed resources were horses and industry specific teaching professionals. Graduation rates were similar across programs and

career paths varied only slightly in terms of primary equine employment or employment in the animal science or agricultural industries outside of equine specific occupations. The information found will inform stakeholders of the key curricula and resource needs of successful post-secondary institutions and serve as a foundation for future studies involving equine educational degree programs.

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Chapter 1

Introduction

According to the American Horse Council Foundation (AHCF), with additional input from the National Agricultural Statistic Service (NASS) and the American Veterinary Medical Association (AVMA), there were approximately 7.3 million horses residing in the United States in 2023 (Alonge, 2023). The American Horse Council Foundation (2023) has broken this total number of horses down into the following generalizations by percentage: recreational horses 43%, show horses (such as dressage, hunter/jumper or western performance) 17%, racing and racehorse breeding 17%, workhorses (such as ranch work, police work, and media use) 8%, Amish owned horses (which may constitute multiple uses) 2% and other 13%.

It is estimated that in 2023, the equine industry contributed approximately $177 billion to the United States economy (AHCF, 2023), up $55 billion from $122 billion in 2017 (AHCF, 2018). This includes primary items such as goods and services, direct wages and salaries as well as secondary items such as housing, tourism, and entertainment (AHCF, 2023). As a national economic driver, the equine industry now supports approximately 2.2 million jobs (AHCF, 2023) which is an increase from 1.7 million jobs in 2018 (AHCF, 2018) and 1.4 million jobs reported in 2005 (AHCF, 2005). The continued growth of employment in the equine industry supports the need and relevance of an equine or equine focused degree (Layton et al., 2021). According to a study completed by Long and Morgan (2010), equine degrees allow students to not only understand how to work with horses, but also be exposed to the depth and breadth that the equine industry has overall.

The face of animal science, and to a degree, equine education and instruction has both changed and stayed the same over the last 100-200 years (Britt et al., 2008). The earliest form of

equine education was traditionally done by word of mouth (Linton, 2021). Lessons in care and husbandry arose from what was prevalent at the time (Schenawolf, 2020). Horse owners shared what worked and what did not among family members, neighbors and employees (Schenawolf, 2020). The scientific grounding may have been unknown, but during the earliest eras, practical production methods reigned supreme (Taylor & Kauffman, 1983). While this is still a common means of sharing and educating today, we also have more formal means of education.

At the turn of the twentieth century, formal equine education was conducted primarily in land grant institutions as part of animal science or agricultural sciences programs (Britt, et al., 2008). These programs focused primarily on raising quality work horses and performing selection/judging based on performance, conformation, and temperament (Damron, 2009). The horse population in the United States peaked sometime during the 1910's at around 26.5 million (Damron, 2009). A lack of specific data at the time precludes us from knowing the exact makeup of the equine population, but the most popular horses were draft horses used primarily for agricultural production and some lighter breeds used for commercial and personal transportation (Parker, 2008). As time went on, horses were gradually replaced with machinery, which while more expensive up front, dramatically increased gains in productivity and efficiency for farmers (Evans, 1951). This, coupled with the Great Depression and World War II, drastically reduced the horse population in the United States to around 3 million by the late 1950's (Kentucky Equine Research, Inc, 2007). This reduction of approximately 23.5 million horses prompted many colleges and universities to eliminate their equine programming completely (Rudolph, 1979).

Following World War II, the interest in horses became mainly for sport and leisure activities (Parmenter, 1978). The 1970's saw a surge in the popularity and re-emergence of

equine specific programming at the post-secondary level (Rudolph, 1979). Despite the growing interest, many animal science and agricultural science programs were slow to reincorporate equine programs due to the perception that horses were no longer livestock since they were not used for food or fiber (Cunha, 1978). Parmenter (1978) also noted that many schools, while interested in offering equine programming, faced the same challenges of high start-up and maintenance costs, and lack of interest and support from administration and faculty. These challenges ultimately led to the variations in programs we see currently (Parmenter, 1978).

Today's post-secondary institutions may see equine education included as a species-specific program or incorporated as a specialization in another program such as animal science or agricultural sciences (Britt et al., 2008). We are also seeing animal science and equine classes added to coursework in the humanities, business, social sciences, and applied sciences (Britt, et al., 2008). Outside of academic endeavors many colleges and universities use equine programming as part of their athletics department (Intercollegiate Horse Shows Association, n.d.; National Collegiate Equestrian Association, n.d.). There are college and/or university equestrian teams at the local, regional and national levels that incorporate an assortment of different disciplines and ranges of skill sets, both extramurally and in the public arena (Tromba, 2020).

Despite their differences, the role of a four-year equine degree remains consistent. To prepare students to enter further educational pursuits such as graduate or veterinary school, or to enter into employment in the equine or equine supporting industries (Kauffman et al., 1984).

Current bachelor's degrees with equine programming can have many different tracks or specializations. It may be equine science, equine studies, equine management, etc. but at the core, it is not all that different from other degrees in the arts and sciences. Students take core coursework in English, history, mathematics, science, etc. (Erickson et al., 2020). These courses

may have an equine skew or be the same as those that every undergraduate at the institution takes. This allows for the same knowledge base that many employers are looking for in a college graduate (Matsouka & Mihail, 2016). The ability to select specialty courses in specific equine areas is what sets apart not only the programs but the students. Each program is different, and students should choose wisely depending upon what their ultimate goals are. Do they want to be hands-on with horses every day in a role such as a trainer, instructor, barn manager, or veterinarian? Or would they like a more traditional career that just incorporates horses without necessarily "getting their hands dirty" on a daily basis? These types of occupations include facility or show management, feed, tack, or pharmaceutical sales or art and media coordinators. Having an overall idea of the expected career path will often drive a student's decisions (Beggs et al., 2008).

Making a decision on a college or university is only the first step for most students. From there, students will help design a course of study to best meet their needs, by including both core coursework and selecting desired electives. Coursework may vary from school to school but often includes classes in care and management, reproduction and genetics, anatomy and physiology, nutrition, riding and training, behavior, selection and judging, instruction, etc. Coursework may also include business and accounting, marketing and sales, facility design and management, legalities, and current industry issues that all have an equine theme or emphasis.

Every college or university will have their own focus and should be able to demonstrate this to potential students and reinforce their priorities with current students. Knowing where the industry is headed and what avenues are the most popular will help individual institutions to stay relevant with incoming student populations (Giovannozzi, 2019). Allowing for assessment and realignment of curricula will also help to keep enrollment, retention and graduation rates high

and speak to the sustainability of the degree (Talbert, 2012). With equine degree programs slowly shutting down or limiting their offerings, these schools might benefit from more centralized data (Toppo, 2018). The equine industry is continuing to grow in the United States and post-secondary institutions must find ways to grow and evolve as well.

Need for Study

A need exists in the field of post-secondary equine education for a study evaluating the existing programs at institutions across the United States. The potential for this study to inform and influence existing and emerging programs with their curricula and resource offerings could improve both the sustainability and relevance of programs nationwide. By investigating what has proven to be most successful at current institutions as well as what they feel is needed for advancement and improvement, the dynamic and diverse needs of future student populations can be met. Meeting these needs should ultimately lead to an increase in enrollment, engagement, retention, academic performance, and graduation rates (Shildkamp & Kuiper, 2010; Talbert, 2012; Yu et al., 2020). By combining both quantitative data analysis with professional insights and observations, this study will contribute to the overall advancement of the field of equine education and hopefully improve the level of preparedness of future graduates.

Research Problem Statement

There is little programmatic evaluation in the field of equine education in the United States. The lack of evaluation into the types of programming offered and whether or not their curricula support transition into graduate school or employment in the equine industry makes it challenging for stakeholders to determine which type of program is relevant to their needs.

With the increasing costs associated with housing an equine degree along with the increased competition from other academic areas, and changing industry expectations, those

programs that do exist are regularly being measured in terms of enrollment, effectiveness and sustainability. As such, it is important for programs to undergo regular assessment and have some type of rubric or empirical data against which to compare themselves and base decisions. As the discipline of equine education evolves, the academic programs and the niche group of those who teach, support, and conduct research in them are challenged with the responsibility of also evolving their methods of teaching, advising, recruiting, mentoring, and placing graduates from said programs (Weckman et al., 2000).

Purpose and Objectives

The purpose of this study was to evaluate the programmatic and curricular components of four-year equine degree programs being offered at post-secondary institutions throughout the United States. The types of degrees offered vary by the institution and include those that are equine species-specific as well as those that offer equine programming as part of a larger animal science or agricultural sciences degree. The main focus of the degrees may also lead to differing equine tracks or specializations such as those in direct care and use of the horse or those in secondary roles such as business, marketing, supply, or communications. The following research objectives guided the direction of the study:

1. Determine what types of four-year equine degree programs currently exist in the United States.
2. Determine what the objectives of a successful four-year equine degree program should be according to those responsible for their construction and facilitation.
3. Determine which curricula and experiences are considered to be the most important for equine students to be properly prepared to enter graduate school or employment in the

equine industry upon graduation, according to those responsible for the construction and facilitation of the degree program.

4. Determine which resources are considered to be the most important in a successful and sustainable four-year equine degree program according to those responsible for their construction and facilitation.
5. Determine the educational outcomes of four-year equine degree programs according to those responsible for the construction and facilitation of the degree program.

Assumptions

In order to complete the study, the following assumptions were made:

1. That there are enough post-secondary institutions in the United States offering four-year equine degrees to make the study not only feasible but relevant in today's educational landscape. This researcher was able to identify 36 Colleges or Universities with equine specific programming and a further 41 Colleges or Universities with a degree offering an equine focus, specialization, concentration or certificate program that required a minimum of 15 equine specific credit hours. These findings support this assumption.
2. That the common goal of a four-year equine degree program is to produce graduates who are prepared to move into further educational pursuits or into employment positions within the equine industry.
3. That the respondents have the appropriate experience to identify what graduates need to successfully enter into advanced schooling options or employment in the equine industry.
4. That the survey instrument asked the appropriate questions to properly evaluate the programming and opinions of those at each of the institutions.

5. That the respondents answered the questions truthfully and to the best of their abilities, although this researcher does recognize that it is possible for self-perceived bias to occur in each of the responses.

Limitations

The limitations of the study include:

1. The list of institutions identified as providing four-year equine degree programming was developed through researcher knowledge and online searches of individual curricula, since no single organization or governing body exists to list these. It is possible that not all of the schools within the United States were identified and subsequently surveyed.
2. The narrow focus of the survey limits its generalizability to these specific types of degree programs.
3. Reliability and validity of the survey are limited as it was researcher produced and not tested beyond an initial pilot test among personally known equine educators at the post-secondary level.
4. The type and number of questions asked in the survey was limited in order to ensure maximum response rates, thus limiting the amount of overall data collected.
5. The researcher may bring researcher bias in interpreting the results of this study due to their previous experience working within the equine post-secondary education system and their desire to see equine programs increase and prosper.

Definition of Terms

1. Anatomy – the structural makeup of an organism or any of its parts (Merriam-Webster, n.d.). For the purposes of this paper, it refers to the physical makeup of horses and other livestock.

2. Arena – an enclosed area used for activity, competition or entertainment (Merriam-Webster, n.d.). For the purposes of this paper, it is an indoor or outdoor area used for the purposes of riding, driving, or otherwise working horses.
3. Barn/Stable – a building for the storage of feed, animals, or equipment, usually used in agricultural settings (Merriam-Webster, n.d.).
4. Behavior – the response of a species to its environment, involving action and response to stimulation (Merriam-Webster, n.d.). For the purposes of this paper, it refers to the actions and reactions of horses in response to their surroundings, other animals and humans.
5. Clinic – for the purposes of this paper, it refers to an instructional session with or about horses, taught by someone with advanced expertise. It may be formal or informal, mounted, on the ground, and/or in a classroom.
6. Equine – of, relating to, or resembling a horse or the horse family (Merriam-Webster, n.d.)
7. Equine Disciplines – different categories of equine sports or activities. Examples of disciplines include but are not limited to: Dressage, hunter/jumper, western pleasure, rodeo, or saddle seat (Parker, 2012).
8. Equine Education - A program that focuses on the horse, horsemanship, and related subjects and prepares individuals to care for horses and horse equipment; ride and drive horses for leisure, sport, show, and professional purposes; and manage the training of horses and riders (NCES, n.d.).
9. Equitation – the act or art of riding horseback (Merriam-Webster, n.d.).

10. Genetics – the biology of heredity and variation of organisms (Merriam-Webster, n.d.). For the purposes of this paper, it refers to the chromosomal makeup of horses and other livestock to produce specific traits through reproduction.
11. Horse Show – An exhibition of horses that includes competition of riding, driving, conformation, and/or temperament (Merriam-Webster, n.d.).
12. Husbandry – the cultivation or production of plants or animals (Merriam-Webster, n.d.). For the purposes of this paper, it refers to the care and management of horses and their environment.
13. Nutrition – the act or process of nourishing or being nourished (Merriam-Webster, n.d.). For the purposes of this paper, it refers to coursework in learning the how and why of feeding horses and other livestock.
14. Physiology – the biological functions and activities of life or living matter including physical and chemical phenomena (Merriam-Webster, n.d.). For the purposes of this paper, it refers to the body systems of horses and other livestock.
15. Post-Secondary Education – education following secondary school (Merriam-Webster, n.d.). For the purposes of this paper, it refers to education at the college or university level.
16. Reproduction – the process by which animals give rise to offspring by a sexual or asexual process (Meriam-Webster, n.d.). For the purposes of this paper, it refers to the sexual process in which horses and other livestock offspring are produced.
17. Selection/Evaluation/Judging – for the purposes of this paper, it refers to the assessment of the horse based upon preapproved criteria. This may follow standards in conformation, movement, performance, etc.

18. Stall – a compartment for a domestic animal in a stable or barn (Merriam-Webster, n.d.).
19. Tack – stable gear (Merriam-Webster, n.d.). For the purposes of this paper, it refers to equipment needed to care for, ride, drive, or work horses.
20. Training – the act, process or method of one that trains (Merriam-Webster, n.d.). For the purposes of this paper, it refers to the imparting of skills and actions upon horses.

Chapter two will be the theoretical and contextual framework along with a review of the pertinent literature. Chapter three will discuss the methodology used. Chapter four will review the results of the survey instrument and statistical relationships found. Finally, chapter five will summarize the findings, discuss their importance and make suggestions for future studies.

Chapter 2

Review of Literature

This chapter will be reviewing the relevant literature for the programmatic review of four-year equine degrees. While the educational pursuits of this type of degree program have been included in animal science or agricultural sciences curricula for over one hundred years, I am focusing primarily on the type of equine programming available at contemporary post-secondary institutions.

The lack of evaluation into the types of programming offered and whether or not their curricula support transition into graduate school or employment in the equine industry makes it challenging for stakeholders to determine which type of program is relevant to their needs. This, along with the increasing costs associated with housing an equine degree program, increased competition from other academic areas, and changing industry expectations, supports the need for a study with the following objectives:

1. Determine what types of four-year equine degree programs currently exist in the United States.
2. Determine what the objectives of a successful four-year equine degree program should be according to those responsible for their construction and facilitation.
3. Determine which curricula and experiences are considered to be the most important for equine students to be properly prepared to enter graduate school or employment in the equine industry upon graduation, according to those responsible for the construction and facilitation of the degree program.

4. Determine which resources are considered to be the most important in a successful and sustainable four-year equine degree program according to those responsible for their construction and facilitation.
5. Determine the educational outcomes of four-year equine degree programs according to those responsible for the construction and facilitation of the degree program.

The majority of the research utilized has been completed in the last 50-60 years. I will also look at how this research conceptually fits into the theoretical constructs of systems theory.

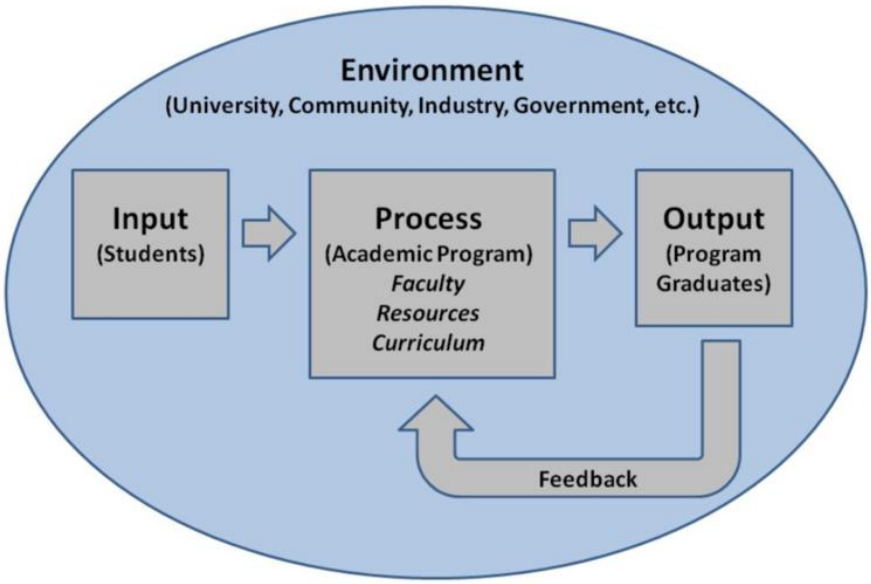
Systems Theory

Systems theory, an idea first developed by pre-Socratic philosophers, was originally advanced by Von Bertalanffy in the 1930's, but became more widely structured in the 1950's as a means to discuss the empirical world through the lens of biology (Boulding, 1956). "General systems theory is the skeleton of science in the sense that it aims to provide a framework or structure of systems on which to hang the flesh and blood of particular disciplines and particular subject matters in an orderly and coherent corpus of knowledge" (Boulding, 1956, p. 208). A second source of systems theory exists in organizational communications research as structural functionalism (Parsons, 1951). "It emphasizes the functions fulfilled by system components as the system responds to environmental demands. The four functions of actions, including adaptation, goal attainment, pattern maintenance, and integration, are necessary to maintain a system's existence and effectiveness, as well as the system's goal of seeking equilibrium" (Lai & Lin, 2017, p. 1). There are other disciplines; mathematics, engineering, physics, and economics that all have similar theories that build upon the overarching idea that all the pieces of the "system" must work together for something to be functional. In this way, systems theory as a whole can be applied to any number of subject matter areas.

Systems theory relates well to organizations (Kast & Rosenzweig, 2017). When dealing with organizations there are five major components: inputs, a transformation process, outputs, feedback, and the environment (Daft, 2010) (Figure 1). This lends itself especially well to education (Chen & Stroup, 1993). Education, while not necessarily producing a tangible good, is a production function (Monk, 1989). There is a functional relationship between the school, the curriculum, and the students (Monk, 1989). To ensure that this production adequately meets the needs of society, there must be clear objectives and strategies in place (John, 2010). John (2010) also stated that graduates must possess certain competencies in the form of skills, abilities, and knowledge that can be transferred to the productive sector of the economy with efficiency and effectiveness.

Figure 1

Educational Systems Program Model



Adapted from Finch & Crunkilton (1999)

When looking at education as a system, you need to look at all of the components that make up that system. The stakeholders in different types of educational systems may and will vary, but often include students, teachers, parents, administrators, and community (Janmaat et al., 2016). Though these are independent entities, they are all interdependent and will affect the behavior and outcomes of the others (Main, 2023). In most cases, one will not exist without the others, and all must be striving toward a common goal or objective (Main, 2023).

A unique aspect of education as a system is that it is an open system, meaning that it interacts, by varying degrees, with the outside environment (Banathy, 1995). There are social, political and economic forces which may put pressure on a school or educational system (Lunenburg, 2010). "Treating schools as if they are independent of their environment would lead to wide misperceptions of the driving factors behind organizational change" (Bastedo, 2004, p. 2). Many of these reported changes do in fact occur because of some outside influence, whether that be standardized testing, revenue streams, or feedback (Groff, 2013).

Organizational change in education systems most commonly emerges following feedback (Lunenburg, 2010). The concept of a feedback loop is found in systems theory and refers to the flow of information among the components within a system (Main, 2023). A positive feedback loop amplifies the effect of a particular behavior, leading to continuation or escalation of the behaviors (Main, 2023). Whereas a negative feedback loop dampens the effect of a behavior and acts as a regulatory mechanism to promote stability within the system (Skyttner, 2005). Ultimately, the output, whether positive or negative, is fed back into the system as an input to effect change and aid a system in adapting or improving over time. Since educational systems are by nature dynamic, rather than static, they must continue to evolve over time in response to both internal and external forces (Groff, 2013).

Lastly, systems theory accepts equifinality in education, meaning that differing paths can still lead to the same end state (Samman & Moreno, 2018). This is important to note as many institutions will have differing curricula and resources, but students will still be expected to have the same core knowledge upon graduation to be successful (Matsouka & Mihail, 2016).

Applying a systems theory framework to a programmatic evaluation of four-year equine degrees in the United States will aid in understanding the similarities, differences, and complexities in these programs. The main components that will be discussed in relation to this study are students, faculty, curricula, resources, and industry needs. These components are all dependent on one another and even though they may differ from program to program they lead to cohesive and effective educational standards.

Students

Students are unique in that they serve as both the input and the output in an organizational systems theory model of education (Mizikaci, 2006). When coming into the program, students are essentially the raw elements and when they graduate from the program and leave the system, they are now the finished product (Monk, 1989). Everything that they experience during the transformation process makes them what they are, regardless of how long they were in the system, or what they were exposed to, they are now a product of the system (Mizikaci, 2006).

The student population entering animal science and/or specifically equine educational programs is not a constant (Mollett & Leslie, 1986). The demographics, backgrounds, skill levels and ultimate goals of the students we are seeing in these programs have been changing constantly over the last few decades (Dyer et al., 1996; Taylor & Kauffman, 1983).

As early as the 1990's there was a noted shift in the face of animal and agricultural sciences, as more and more students were coming into these disciplines from non-rural backgrounds (Dyer et al., 1996; Scofield, 1995). This has continued into the 2000's where studies have shown that students are increasingly arriving at post-secondary institutions from suburban backgrounds without any significant knowledge or experience in animal-based agriculture (Buchanan, 2008; Greene & Byler, 2004). Long and Morgan (2010) conducted a survey among equine educational professionals in which one participant stated "A large percentage of my students come from a non-horse background and lack in hands-on horse experience. Some of the ones that have some experiences have many bad and unsafe habits around all horses" (p. 5). In addition to being underprepared on the equine side, many of today's students also lack transferrable skills such as critical thinking, problem solving, communication, and/or leadership skills that are not only necessary but required in the workplaces of the 21st century (Fields et al., 2003; Mortenson & Vernon, 2009). Overall, students who are entering college or university are far less prepared for a future career in the equine industry than their counterparts from only ten to twenty years ago (King, 2009).

While this may seem dire, multiple studies have shown that previous horse experience does not preclude students from being successful in equine classes. A study by Lawrence (1987) found that previous equine experience had no effect on the final grades in an equine management class. A later study by Pratt-Phillips and Schmitt (2010) showed that previous equine experience had a minimal impact on student performance in introductory equine lecture classes. However, both studies did acknowledge the limitations of relying on students to self-report what their actual level of equine experience was. Lawrence (1987) further stated the student's level of interest, with respect to future career goals, also impacted their grade performance. This

evidence points to the fact that while challenging, a lack of previous experience does not automatically correlate with poor performance in equine classes. Historically, it has been well established that students who are intrinsically motivated to excel in school will perform at a high level regardless of the subject or material (McKenzie & Schweitzer, 2001). Also, that students of agriculture tend to have negative feelings towards lecture-based courses and positive feelings towards more hands-on courses (McKibben et al, 2023). The study by Pratt-Phillips and Schmitt (2010) did find a significant negative relationship between previous equine experience and the perceived amount of effort required to perform in equine classes. The students who self-identified as having less previous experience felt that they had to work harder than those with more experience. However, students with little hands-on, pragmatic experience have been shown to be able to overcome and level their efficacy when compared to their less experienced classmates in certain agriculture courses (McKibben et al, 2022b).

We are also seeing a shift in the gender of enrollees over the past twenty to thirty years. While early on, students were primarily male, undergraduate students seeking instruction in equine concentrations is now predominantly female, with numbers reporting an average of 90% female enrollment (Food and Agricultural Education Information System, 2010). The contemporary equine industry is much more welcoming of women than it was a century ago and programs have evolved to cater to a more feminine presence (Taylor & Kauffman, 1983). This same thing can be seen in other aspects of once male dominated agricultural fields, where women are becoming not only accepted, but considered the norm (McKibben et al, 2022a).

In addition to shifting demographics, students today are looking for more than just a diploma from their college or university experience. Before they even arrive, the majority of students are predominantly using the internet to aid in their college search process (Sattarova,

2018). Fishman (2015) found that students were focusing not only on the programs offered, but also on costs associated with the program, student groups, campus facilities, sports teams, and recommendations from friends, family, and alumni. She determined that social offerings, such as the quality of classroom interactions, connections with faculty, and a sense of fitting in effect the level of fulfillment students receive from their educational environment. Sattarova (2018) found that students were utilizing university and college websites, as well as college search engines to obtain information on graduation rates, post-graduation employment prospects, and starting salaries. She also found that students were completing virtual tours of the campus to decide if the aesthetics felt like a good fit before scheduling an on campus, in person tour. In a study of Gen Z agricultural students, it was determined that overall, students are now concerned more about the return on investment a college degree will bring them than whether or not the institution is highly ranked or considered to be prestigious (Cletzer et al., 2021). The most successful programs have realized that student satisfaction is key to both enrollment and retention (Sattarova, 2018). Students today want both the academic credentials and social experiences that fill out what they perceive as the ultimate college experience.

Faculty

Faculty, for the purposes of this education systems theory model will fit under transformation process, they are essentially a resource for the students while they are completing their journey (Finch & Crunkilton, 1999). While they do offer changing input and have a dynamic effect on learners, they are not going to leave the system when the students that they are teaching do (Janmaat et al., 2016).

Under the title of faculty, I have chosen to include those considered traditional faculty in the roles of assistant professor, associate professor, professor, or clinical professor as well as

those titled lecturer or instructor. Heird (2009) noted that an increase in the growth of equine science programs in the early 2000's led to an increase in the need for administrative investment at the undergraduate level. With this heightened demand for instructional support, especially in lower level or specialty courses, full or part time instructors are often supplementing the teaching load of full-time faculty (Splan & Porr, 2011). This is a common approach in many equine science courses as instruction-based personnel often bring significant practical experience to teaching roles at a reduced administrative cost (Giedt, 2010). In equine training or equitation courses in particular, those valued as experts in the field such as successful horse trainers or instructors rarely have the advanced degrees, master's or doctorates, which would be required for them to hold full time professor/faculty roles (Splan & Porr, 2011). The major criteria for hiring staff in these ranks is experience (Parmenter, 1978).

Faculty serve several different but equally important responsibilities in the transformation process of the students. Their main task is the conveyance of information to their pupils. Kupperschmidt and Burns (1997) stated that curriculum is an "extension of the faculty's psychological self" (p. 90). They posited that for an instructor to be effective, they needed to not only understand but also believe in the material that they were teaching. Taylor and Kauffman (1983) similarly identified that instructors "must be knowledgeable, interested, enthusiastic and capable of challenging students" (p. 172). Decades later, Long & Morgan (2010) noted that if faculty are not knowledgeable about horses and dedicated to the program that they are a part of, then students will recognize this, possibly leading to lowered enrollment and eventual phasing out of the class or program.

Value should not just be placed on the transference of information, however. Faculty also play a key role in determining what is included in the actual curriculum (Dillard & Siktberg,

2013). Instructors are often the direct recipients of feedback from the stakeholders, including students, graduates, institutional administration, and industry outsiders and they should be sought out as experts for curriculum change (Long & Morgan, 2010). Sell and Lounsberry (1997) posited that faculty need to be included in the curriculum improvement process, to ensure that previous programming is understood, and future programming will be supported.

Faculty are on the frontlines when it comes to relevancy with their students (Dillard & Siktberg, 2013). They must be able to make the course content applicable to real world situations and students' lives post-graduation (Aulls, 2004). It is also imperative that instructors be knowledgeable about the current trends in the industry (Hoffman & Arnold, 2018). Whether this is rules related to showing in specific disciplines, current conformational guidelines for breed associations, or the prevailing trends in veterinary medicine for the treatment of disease and lameness. Students cannot be prepared to enter the equine industry and workforce if everything they learned is out of date and irrelevant to current practices (Hoffman & Arnold, 2018). For these reasons, equine faculty must be lifelong learners themselves and be motivated to continually search out opportunities for continuing education and professional development (MacKay et al, 2022). Lastly, faculty need to have strong ties to the equine industry (Hoffman & Arnold, 2018). While this may vary depending on the breeds, disciplines, or geographic regions that are paramount to the individual, industry connections will aid faculty in staying abreast of what is happening in the industry and also open up pathways for students to gain additional education or employment opportunities both during and following their studies.

Curricula

It could be argued that curricula are the most important part of the transformation process in a systems theory model of education (Spain, 2019). It is the curricula that the students are

learning from to gain employment upon graduation, it doesn't matter how amazing the faculty or unending the resources are if the skills, knowledge and subject matter are lacking (Tedesco et al., 2014). The goal of every academic program should be to prepare graduates for continued personal and professional growth beyond academia (Anderson, 2015).

Equine classes have traditionally been taught under the umbrella of an animal science or agricultural sciences program (Britt et al., 2008). And while enrolment in these types of programs is either increasing or remaining steady, there has been a noted shift toward students with a primary interest in equine or companion animal science (Moore et al., 2008). This has led to some programs developing coursework specifically dedicated to equine science and/or equine management (Buchanan, 2008). Other schools have developed options in which students can specialize or emphasize their equine interests while still being part of a broader animal or agricultural sciences curriculum (Buchanan, 2008). Finally, some schools are utilizing stand alone, equine species-specific programs so that students can spend their time focused solely on their equine interests (Rudolph, 1979).

The horse industry is and will continue to be a significant sector of the animal industry and educational horse programs are needed in many areas (Cunningham et al., 2005). The hard part comes in identifying which specific skills are most valuable to the future graduate. Given the potential dangers associated with handling a large, reactive, prey species (Gadd et al., 2018) one would think that courses in safe and proper handling would be paramount, but that depends on the career aspirations of the students. Courses in equine science are often highly specialized, time consuming and physically strenuous (Splan & Porr, 2011). The development of a learning plan, customized to a career goal becomes valuable to ensure that students are engaged in intentional learning activities (VonDras & Miller, 2002). Helping students to develop specific

learning objectives will encourage greater participation in learning (DeVuyst, 2006) and increased retention in the discipline (Ball et al., 2001).

Student expectations of a curriculum vary depending on what future career they see for themselves. One of the more popular career paths for equine students is to go on to veterinary school (Buchanan, 2008). Peffer (2010) reported that between 2007-2008 68% of animal science students reported that they intended to go to veterinary school following their undergraduate degree. In two separate prior studies Edwards (as cited in Rossano & Burk, 2013) reported the pre-vet student population at 59% and Mollet and Leslie (1986) reported a pre-vet population of 52%. Given the numbers, it would seem only logical that today's data would be at or above the previous numbers. However, according to the American Association of Veterinary Medical Colleges (n.d.) only approximately 3000 students or 10% of the applying population actually get accepted to veterinary school every year. While these numbers may rise in coming years due to the increase in veterinary schools utilizing a distributive approach (Larkin, 2023), there are still a limited number of seats. So, while the interest may be there, a curriculum with a pre-veterinary medicine focus would not necessarily be the best approach for many equine students.

The next most common focus would be riding and training of horses. Most individuals interested in equine programs came by it from prior experience in riding or working with horses (Wood et al., 2010). A study done by Wood et al. (2010) showed that the most experienced riders showed the greatest interest in completing an equine degree. This seems in contrast to what was discovered in a study by Gadd et al. (2018) whereby riding and training were considered two of the least desired skills sets by equine industry professionals for new graduates. Although it was postulated by Gadd et al. (2018) that this may be due to industry professionals preferring to teach

their own specific methods of riding and training to their new employees rather than a lack of trust in post-secondary institutions to teach these same skills.

It is hard to determine which approach is best when analyzing equine degree curricula when specializations can first be preferred and then contradicted. Coffey (1917) stated that the first step in determining curriculum is to identify the ultimate goal of the program. Cole and Johnson (1981) believed that you needed to first form objectives that would serve as the foundation of your curriculum. These two approaches can work hand in hand when looking at equine program curricula. First determine where a student is going to go following graduation, then determine what it's going to take to get them there.

One study asked both equine education professionals as well as equine industry professionals what they believe the overall outcome of an equine degree should be. Long and Morgan (2010) had participants state "prepare students to successfully compete for employment in the equine industry" along with "develop skills needed by utilizing hands-on experiences and applied study" or "produce students who have a working knowledge of all facets of equine management" (p. 4). An earlier study by Rudolph (1979) found that professionals wanted to provide students with a fundamental background in horse management or to provide training for students entering horse-related careers, and finally to enhance students' personal enjoyment of the topic.

The only issue with these statements is their broad nature. There is limited research into which specific classes or delivery methods seem to be the most important overall. The argument of lecture versus laboratory time comes into play for many programs. Adams-Pope et al. (2016) found that students achieved higher test scores when materials were presented only in lecture format compared to those classes with laboratories involving horses. Hence, given the high cost

associated with maintaining equine teaching herds and facilities, laboratory sessions may not be needed to meet all equine learning objectives (Gadd et al. 2018). Yet, a study by Layton et al. (2022) found that learners better retain knowledge through experiences, that students have a more positive attitude when presented with hands-on activities (Pugsley & Clayton, 2003) and that more knowledge is actually acquired when hands-on activities are involved (Ogbeba & Ajayi, 2018). In a study by Gadd et al. (2018) participants stated that hands-on classes were the foundation of their programs because they strengthen and further students' skills for future employment in the industry. But does all of this depend upon the objectives of the course?

It is often contended that soft skills can be acquired when carrying out equine skills. However, for our purposes, we are going to divide those into two separate types of coursework. In two of the more recent studies evaluating equine educational programs the equine classwork mentioned most often in terms of prioritization were equine health, equine nutrition, equine anatomy, equine conformation and equine business management (Long & Morgan, 2010). Gadd et al. (2018) highlighted classes in general horse handling skills, feed and nutrition, and basic healthcare. In terms of transferrable skills Hoffman & Arnold (2018) found that professionals thought students needed more coursework in education or instruction, business, communication, and relationship building, accounting, and management. All groups affirmed the need for an internship, externship, employment, or some other type of real-world experience in the equine industry prior to graduation to increase students' skill sets in both equine and soft skills development.

Academic internship programs provide an opportunity for students to gain new skills and improve upon the ones they have (Starr & Conley, 2006), develop soft skills (Marsh et al., 2016), network with industry professionals and future employers (Hiller et al., 2014), and have exposure

to various aspects of the equine industry (Anderson, 2015). Jogan & Herring (2007) posited that students needed off-campus internship experiences to enhance their marketability following graduation. Many employers prefer graduates who have had experience applying what they have learned in real-world settings (Gadd et al., 2018) or have had the opportunity to actually perform an action rather than just give a textbook definition of what is supposed to happen (Long & Morgan, 2010). In addition to the theoretical knowledge imparted in the classroom, internships allow students to put these skills into practice. In a study by Layton et al. (2022) 90% of the student respondents felt that their internship experience positively added to what they had previously learned in the classroom. Students also indicated that internships positively increased their communication skills and responsibility (Anderson, 2015), cooperation skills and willingness to learn (Bennett-Wimbush & Amstutz, 2011), and problem solving and the ability to apply reasoning (Wood et al., 2010). Given the above responses, it would seem logical that some type of experiential learning internship should be included in all equine programming curricula in addition to what is offered through the school.

Resources

Resources fit under the heading of transformation process in organizational systems methods (Finch & Crunkilton, 1999). While one could argue that resources would also be considered input, they are more a part of the process than a product when viewed through an educational lens. In equine educational programs, the resources serve to support the system by contributing to the curriculum and the student experience.

The resources needed in an equine program are a reflection of the degree and coursework offerings (Zhao et al., 2017). Horses, for example, are likely included at all types of schools. Curricula with riding and training classes will need under saddle horses that fit the breeds or

disciplines popular in the area of the school. However, programs with a strong reproduction emphasis will need broodmares, stallions and young stock. And programs with more of a business emphasis may require a much smaller number of horses as hands-on equine activities aren't likely to be at the forefront. Parmenter (1978) found that the school ownership of horses was the most suitable for equine programs, but privately owned and leased horses are also used in a number of programs. At the University of Montana Western for example, students are required to bring their own horses to school to learn on (Hoffman & Arnold, 2018). Acquisition of quality, safe, and appropriate school horses is also difficult to define. Most schools report that horses are either bred by the school, purchased by the school, or obtained through private donation (Parmenter, 1978). Private donation remains a popular option today with the allowance of personal tax credits for donation to educational institutions.

However, horses are only one example of the many resources necessary to support an equine educational program (Parmenter, 1978). Facilities to teach lectures and labs as well as those to house the horses themselves are also extremely important (Parmenter, 1978). And with this comes all of the "tack" or tools and equipment necessary for the care and training of the horses along with books, computers, simulators, etc. needed to facilitate the coursework (Long & Morgan, 2010). In addition to this, programs must stay current and relevant to what is happening in the industry, and have access to outside trainers, modern methods and technologies that are crucial for student success (Hoffman & Arnold, 2018).

The resources in an equine degree program vary as much as the programs themselves, but the main problems tend to remain the same. Parmenter (1978) noted that many schools, while interested in offering equine programming, faced the same challenges of high startup and maintenance costs, and lack of interest and support from administration and faculty. In a later

study by Budd (1989) it was reconfirmed that the biggest resource challenges facing post-secondary equine educational programs were insufficient funds, inadequate facilities and lack of administrative support.

Funding tends to run as a constant in the area of needed resources. While some funding may come directly from the university or college by way of programming or tuition, many equine programs need to supplement it with other sources (Britt et al., 2008). William Woods University (n.d.), for example, requires students to pay a laboratory fee above their regular tuition for each riding/training class that they are enrolled in. This additional funding helps to offset the costs for horse care and facility upkeep (William Woods, n.d.). They also host horse shows and clinics for both the student body and the general public to attend, in which to raise funds for more specific programming (William Woods University, n.d.). Some schools such as the University of Vermont (n.d.) have robust breeding programs and use the sales of horses produced by the program to offset costs. Other schools like St Andrews University (n.d.) offer riding programs to the public or offer summer camp programming when school is not in session. Finally, many programs rely on alumni support, fundraisers, public donations and grants to help fund their programs (Hovey et al., 2018).

Industry Needs

In the model for systems theory in organizational management, or for our purposes, education, industry needs and expectations are a function of the environment (Finch & Crunkilton, 1999). Industry needs may serve as inputs that the system must respond to (Main, 2023). For example, expectations of the skills that a new graduate will be competent in may influence the curricula in the degree program (Hoffman & Arnold, 2018). However, as part of the environment, they may also themselves be influenced by the outputs or graduates of the

program (Lunenburg & Ornstein, 2022). For instance, new graduates may have been taught emerging technologies that members of the industry have not yet integrated and may be forced to do so to attract these new graduates into employment positions (Foll & Thiesse, 2017). In either instance, the needs and expectations of the equine industry hold significant weight in evaluating four-year equine degree programs.

The problem with trying to evaluate the needs and expectations of the equine industry lies in the fact that it is a vast and varied industry (AHCF, 2023). There are those people who have direct contact with horses on a daily basis. These types of primary positions, for the purposes of this study, include but are not limited to horse trainers, lesson instructors, barn managers, veterinarians and veterinary technicians, farriers, etc. Then there are the people who, for the purposes of this study, have a more secondary role in the equine industry. Those who deal in horse-related topics every day or even work in barns but may not be directly involved with the horses themselves. These types of roles may include horse show managers, facility designers, feed and tack sales and dealers, office managers, etc. Third, you have those individuals who, for the purposes of this study, never have contact with horses but support those who do. This may include roles such as marketing and advertising, hospitality and tourism, arts and media, etc. Finally, you have horse owners. These individuals may work in or merely support the equine industry, but their roles and experiences are far too broad to chronicle (Miller, 1989). When you begin to dive into the disparities between breed, discipline, and geographic location, the needs and opinions of each group becomes unmanageable. For the purposes of this study, we are looking principally at the primary and secondary roles in the general equine industry and what their expectations of a graduate from a four-year equine degree include.

A recurring need of the equine industry is that students graduate with practical horse skills (Anderson, 2015), however, employers are indicating that hands-on experiences with horses is often lacking in equine students' post-graduation (Hoffman & Arnold, 2018). Some researchers indicated that agricultural institutions were not meeting the expectations of employers (Blickenstaff et al., 2015; DiBenedetto & Whitwell, 2019) especially in relation to equine technical skills needed postgraduation (Gadd et al., 2018) and that most students are in fact substandard of employer expectations following graduation (Blickenstaff et al., 2015). There does exist a gap in the research here, as to which specific equine technical skills employers consider most valuable. Gadd et al. (2018) attempted to fill this gap by conducting a Delphi study with equine educators and industry professionals whereby they categorized skills into equine handling, management, health, and transferable skills. The most important skills identified were collecting vital signs and understanding instinctive equine behavior and the least important skills were riding and training horses.

Hollis (as cited by Matte, 1994) observed that an increasing number of horse farms and related businesses were seeking employees that had not only horse knowledge, but additional skills that would allow them to perform a wider range of duties within those positions. Even for those who had more secondary roles, having horse knowledge was considered a bonus, as these employees would have a greater understanding of the needs of the position (Burgess, 2007) but not without additional soft skills. In a study by Jogan and Herring (2007) honesty and work ethic were identified by equine industry experts as having a high importance among new employees. When equine professionals were interviewed by Hoffman and Arnold (2018), they stated that students should have a good work ethic, a good attitude, the ability to build relationships, and a realistic view of what it takes to build a business in addition to skills in equine training and

behavior. This tells us that regardless of the type of degree offered, graduates need to have foundational horse knowledge, soft skills, and specialty career path skills (Hoffman & Arnold, 2018). However, Hoffman and Arnold (2018) also found that when graduates had the soft skills important to future employers, they often lacked advanced knowledge about horses, which leads institutions into an ever-evolving discussion about how to balance the needs of the industry with the present curricula.

As a result of utilizing systems theory as a construct for this study, I was able to create a framework that integrated the roles of students, faculty, curriculum, resources, and industry needs in four-year equine educational programs. By reviewing the current literature, this study will be better able to align the results acquired with the evolving needs of each group of stakeholders, producing qualified and successful graduates, satisfied and supportive industry professionals, and relevant and sustainable equine programs.

Chapter 3

Methodology

The equine sector in the United States is a multibillion-dollar industry that is directly responsible for more than two million jobs nationwide (AHCF, 2023). There exists a need for post-secondary degree programs which can prepare future graduates to enter the equine workforce (Layton et al., 2021). However, four-year animal science and/or equine degree programs vary in terms of curricula, resources, and expected outcomes and it can be difficult for stakeholders to identify which programs are most relevant to their needs (Stufflebeam, 1969). A modern look at the types of programming offered and whether or not their curricula support transition into graduate school or differing levels of employment within the equine industry is needed.

Purpose and Objectives

The purpose of this study was to evaluate the programmatic and curricular components of four-year equine degree programs being offered at post-secondary institutions throughout the United States. The types of degrees offered vary by the institution and include those that are equine species-specific as well as those that offer equine programming as part of a larger animal science or agricultural sciences degree. The main focus of the degrees may also lead to differing equine tracks or specializations such as those in direct care and use of the horse or those in secondary roles such as business, marketing, supply, or communications. The following research objectives guided the direction of the study:

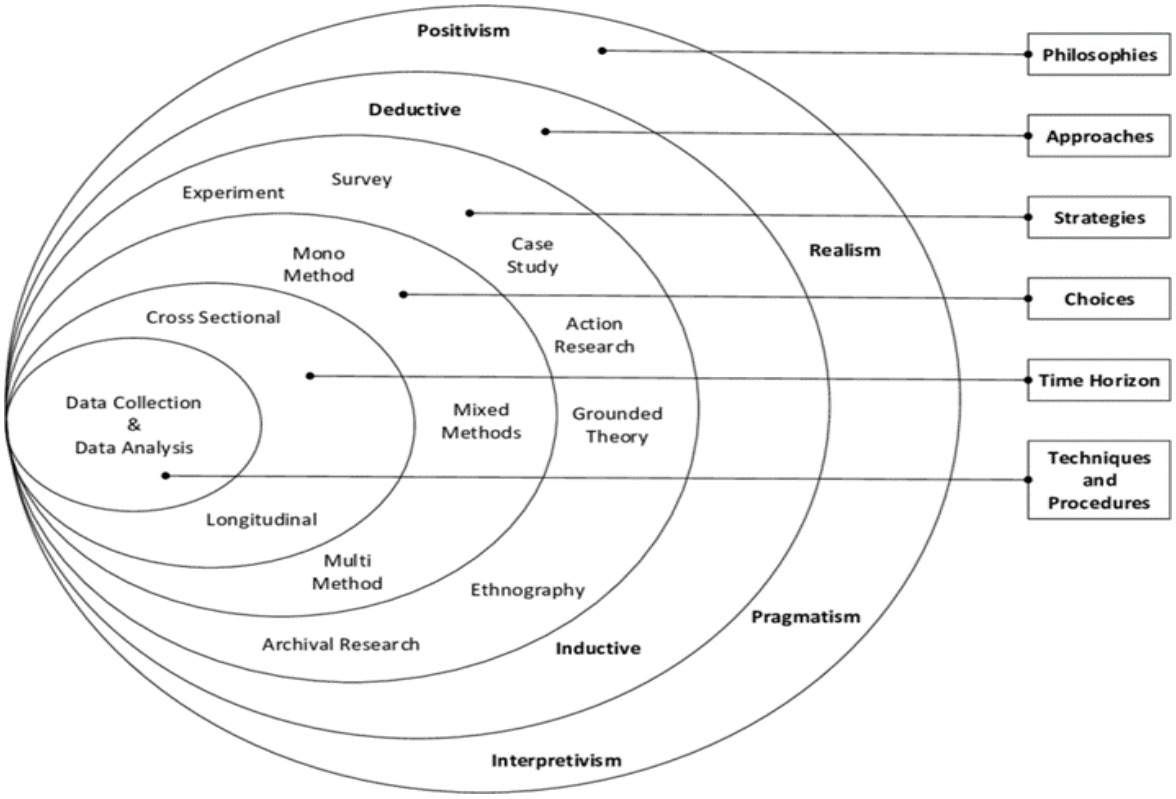
1. Determine what types of four-year equine degree programs currently exist in the United States.

2. Determine what the objectives of a successful four-year equine degree program should be according to those responsible for their construction and facilitation.
3. Determine which curricula and experiences are considered to be the most important for equine students to be properly prepared to enter graduate school or employment in the equine industry upon graduation, according to those responsible for the construction and facilitation of the degree program.
4. Determine which resources are considered to be the most important in a successful and sustainable four-year equine degree program according to those responsible for their construction and facilitation.
5. Determine the educational outcomes of four-year equine degree programs according to those responsible for the construction and facilitation of the degree program.

The structure of the methodology section will follow that outlined by the Saunders Research Onion (Figure 2). The first section will discuss research philosophy. The second section will examine the research approach taken. The third section will review the research strategies. The fourth section will pertain to the sampling choices. The fifth section explains the time horizon utilized. The sixth section will report on the data collection methods. The seventh section will address the data analysis. And finally, the eighth section will look at methodological limitations and offer a summary of what has been discussed throughout the chapter.

Figure 2

Saunders Research Onion (Saunders et al., 2007, p. 108)



Research Philosophy

This study follows a philosophy of pragmatism. Pragmatism began in the United States in the late 19th century under the ideals that social science inquiries could not be accessed solely by using the scientific method (Maxcy, 2003). It was postulated that researchers should utilize the philosophical or methodological approach that would lend itself best to the problem being investigated (Tashakkori & Teddlie, 1998). As such it is often associated with mixed-methods or multiple-methods research where the focus is primarily on the research questions or the consequences of the research rather than on the methods employed (Creswell & Plano-Clark, 2011). Along these lines is the view that researcher themself should make the decision on which questions or methods would be the best or most appropriate regardless of what may have been done or accepted in the past (Morgan, 2007).

At the core of pragmatist epistemology is the belief that knowledge is based on experience (Kaushik & Walsh, 2019). That each individual's knowledge is unique to them based upon their perceptions of the world around them and what has been socially shared with others (Morgan, 2014). And that individuals see truth based on what has stood the scrutiny of many individuals over time (Baker & Schaltegger, 2015). Ultimately, that one is free to believe anything that they want, but that some beliefs are more likely to meet their goals and needs than others (Morgan, 2014).

Overall, pragmatism involves the detection of a socially situated problem, and the actions needed to address the problem in the real world (Creswell & Plano-Clark, 2003; Kaushik & Walsh, 2019). It highlights the consequences of the actions taken whether positive or negative, intended or not. The pragmatist does not necessarily define something based on what it is being used for, but rather if it would help one to ultimately achieve their goal or purpose (Goles & Hirscheim, 2000).

Pragmatism lends itself well to this study. The research question has real-world, practical implications for both the institutions and the stakeholders. I have chosen individuals who have senior positions in their fields and have the lived experiences to draw their opinions and observations from. In the end, the results will allow educational institutions with four-year equine degree programs to make actionable decisions regarding their programming and will allow students to make educated decisions for their futures based on the data collected.

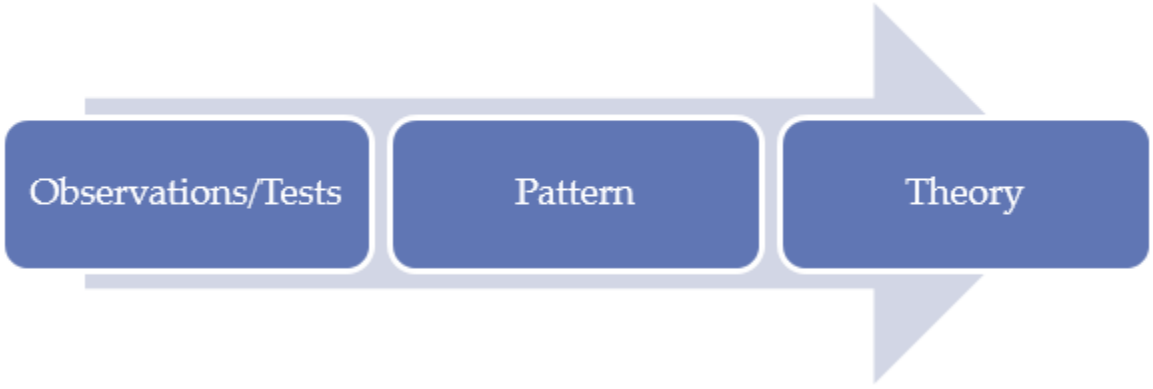
Research Approach

Inductive reasoning or an inductive approach is known as "bottom up" or "data driven" research; an inductive approach to research begins by gathering observations and data and then analyzing the information to propose theories and explanations (Goddard & Melville, 2004).

The explanations or theories will be developed by recognizing patterns that may or may not be clearly visible and testing hypotheses that have been drawn from those patterns (Bernard, 2011) (Figure 3). These theories would not be evident at the beginning of the research and the direction of the study may change depending upon what has been observed and whether or not it aligns with existing research (Saunders et al., 2007).

Figure 3

Inductive Research Approach



An inductive research approach lends itself especially well to this study. The main objectives of the study are to determine what types of programming are considered the best or most appropriate for students to find success at the culmination of their four-year equine degree program. As there is limited current research on this topic, data has been collected to ascertain if we can find the trends to assist stakeholders in identifying which potential outcomes would be most beneficial. This up-to-the-moment data reflects what is occurring in a dynamic and evolving industry and does not rely on previously generated material. While inductive research typically uses qualitative analysis methods, this study will employ primarily quantitative methods.

Research Strategy/Design

This study employed question-based survey research (Groves et al., 2009). Survey research is defined as "the collection of information from a sample of individuals through their responses to questions" (Check & Schutt, 2012, p. 160). Survey research is frequently used in social or psychological research as it explores human behavior and opinions (Singleton & Straits, 2009). Surveys may be qualitative or quantitative in nature or may include both in a mixed-methods approach. A questionnaire is a valuable survey tool as it is relatively economical to distribute, asks the same questions of all subjects, and has a reduced chance for bias in data collection than other collection methods (McMillan & Schumacher, 2010).

Instrument Design

A questionnaire was designed for the purposes of this study. In an effort to meet the objectives of the study, it contained 29 questions pertaining to the following constructs: type of degree, recruitment strategies, curriculum, graduation rates and paths, resource allotment, and faculty characteristics (Appendix F). Questions had answer options that included multiple choice, Likert based summated scales (Lindner & Lindner, 2024), rank-order, and open-ended. The questionnaire and all related materials were submitted to and approved by the Institutional Review Board of Auburn University (Appendix A).

The questionnaire contained researcher developed questions and was reviewed with qualified faculty members to improve the face validity, readability, and appearance of the instrument prior to its distribution. Following this, a pilot test was conducted to review the instrument for content and face validity. Non-target faculty members in the equine departments at three separate post-secondary institutions were chosen to participate in the pilot test so as not to access the final population of the study. An email with a link to the questionnaire was sent to

each of these individuals and all three returned the completed questionnaire on the same day. Each of the participants in the pilot test were contacted by phone for feedback regarding the questionnaire. Minor changes to formatting and wording were made at their suggestions.

Population/Sample

The goal of the study was to gain insight into the current four-year equine degree options available in the United States. A list was created with all of the target schools. This list was created by previous researcher knowledge, coordination with industry experts, and online searches. Through these approaches, 36 schools with equine species-specific degree programs and an additional 41 schools with degrees in animal science, agricultural sciences, interdisciplinary studies, etc. that had an equine specialization, focus, track or certificate program requiring a minimum of 15 credit hours of equine specific programming were located. Programs with only equine minors or only equine athletics were not included in the list, as they do not have four-year degree offerings.

Once the school list was completed, an online search was conducted to identify the department heads or senior faculty in the equine programs. This nonprobability, purposive sampling ensured that the questionnaire would be completed by an expert in the field with current knowledge of both the equine industry as well as their home institutions. Institutional email addresses were publicly reported and accessed. Given that these institutions were nationwide, electronic distribution by email was the most accessible means of communication. Electronic distribution allowed the respondents to complete the questionnaire in a time and place that was most convenient for them (Dillman, 2007). An information letter and contact details were provided if any of the respondents had questions or concerns, difficulty accessing the questionnaire or had additional follow-up in accordance with Auburn University Institutional

Review Board requirements (Appendix B). Eligible participants had to meet the outlined criteria of current position in their program, age of 18 or older, and voluntary consent to participate. Participants were informed that there would be no compensation other than the results of the data given prior to beginning the questionnaire. Further specifications of the respondents and reporting institutions will be discussed in chapter four, under the objective one results.

Time Horizon

The time horizon chosen for this study was cross-sectional, the data was collected at one point in time rather than over multiple time points (Cohen et al., 2009). While this may be a study that could be conducted using a longitudinal approach, the time constraints would not have been conducive to that type of study. Also, as I am looking at the current state of the equine programming in the United States, a one-time questionnaire provides the data needed to write up the study based upon today's needs. Furthermore, a study with only one collection point is more likely to be completed than one which requires continued effort and engagement by the participant (Dillman, 2007).

Data Collection

In an effort to achieve the greatest number of responses, I generally followed the methods described by Dillman (2007) for internet surveys. He suggested using multiple contacts, personalizing messages when possible, keeping the cover letter brief, and including replacement questionnaires with each reminder message. The first email was sent to the entire list of 77 post-secondary institutions (Appendix C). This included the cover letter, informational and consent letters, and a link to the questionnaire. As responses slowed, approximately two weeks later, I sent the first reminder email to those who had not yet completed the questionnaire, again with a link to participate (Appendix D). This first reminder gave more personal information about

myself and my interest in the study as an alternate approach to solicit responses. Approximately two weeks later, four weeks from the initial email, I sent another reminder email to those who had yet to respond, with another link to the questionnaire (Appendix E). This second reminder spoke to the research need for the study, again, trying to reach a larger percentage of the audience. Finally, approximately five weeks from the initial email, I sent out a third and last reminder message with a link to the questionnaire. This email was personalized to each participant who had not yet responded and their institution, highlighting my knowledge of the program and any personal connections I may have had with that individual to hopefully garner any last responses. The survey link remained open and active for approximately three months until the data were analyzed in the event that any further participants chose to complete the questionnaire at a much later time point.

The questionnaire was administered, and the data collected using Qualtrics software. This survey instrument was distributed in an online format. The general formatting of the survey was produced for Auburn University, with their preferred theming and graphics. The responses were then collected and collated.

Data Analysis

Following completion of the questionnaire, the data was analyzed using IBM SPSS Statistics (Version 29) software. Frequencies and percentages were tabulated for all applicable results by question. For those results that lended themselves to further investigation, descriptive statistics and central tendencies such as mean, median, mode, and standard deviation were calculated. Following these, independent samples t-tests for equality of means were performed. Statistical significance was set at $p < .05$ *a priori*. Effect size, Cohen's d, were reported using the parameters described by Lindner and Lindner (2024) whereby a small effect size is less than or

equal to 0.19, a medium effect size is between 0.20 – 0.49, and a large effect size is 0.50 and higher. One question used a Likert (1932) based, five-point scale to assess importance. As these are vague quantifiers, summated mean values were set at; Not at all important 1.00 - 1.50, slightly important 1.51-2.50, moderately important 2.51-3.50, very important 3.51-4.50, extremely important 4.51-5.00 (Lindner & Lindner, 2024).

Open ended responses were reported verbatim in the results section, with only minor alteration where necessary to correct spelling, grammar or punctuation errors. There was one question that asked what the objectives of the degree program should be. As the results for this question were all different based upon respondent beliefs, opinions, and experiences, a thematic analysis was first carried out by the researcher (Lincoln & Guba, 1985). Data were categorized by response type and examined in a systematic way to determine if patterns (themes) existed in the response (Lincoln & Guba, 1985). Trustworthiness was ensured by following methods outlined to ensure the four key criteria of trustworthiness: Credibility, Transferability, Dependability, and Confirmability (Lincoln & Guba, 1985).

In an attempt to satisfy epistemological curiosity, the results were further confirmed by inputting the transcribed responses into Microsoft CoPilot (2023). The prompt used was “please investigate the attached document of individual responses, please report any common themes in these responses”. Intriguingly, highly comparable results were achieved when the researcher coded themes were compared to the AI generated themes.

Methodological Limitations

As with any research study, there exists a number of limitations that affect this study. As a researcher I have done my best to limit the effect of the limitations. The first limitation is response rates. While all efforts were made to achieve a sufficient number of responses, I could

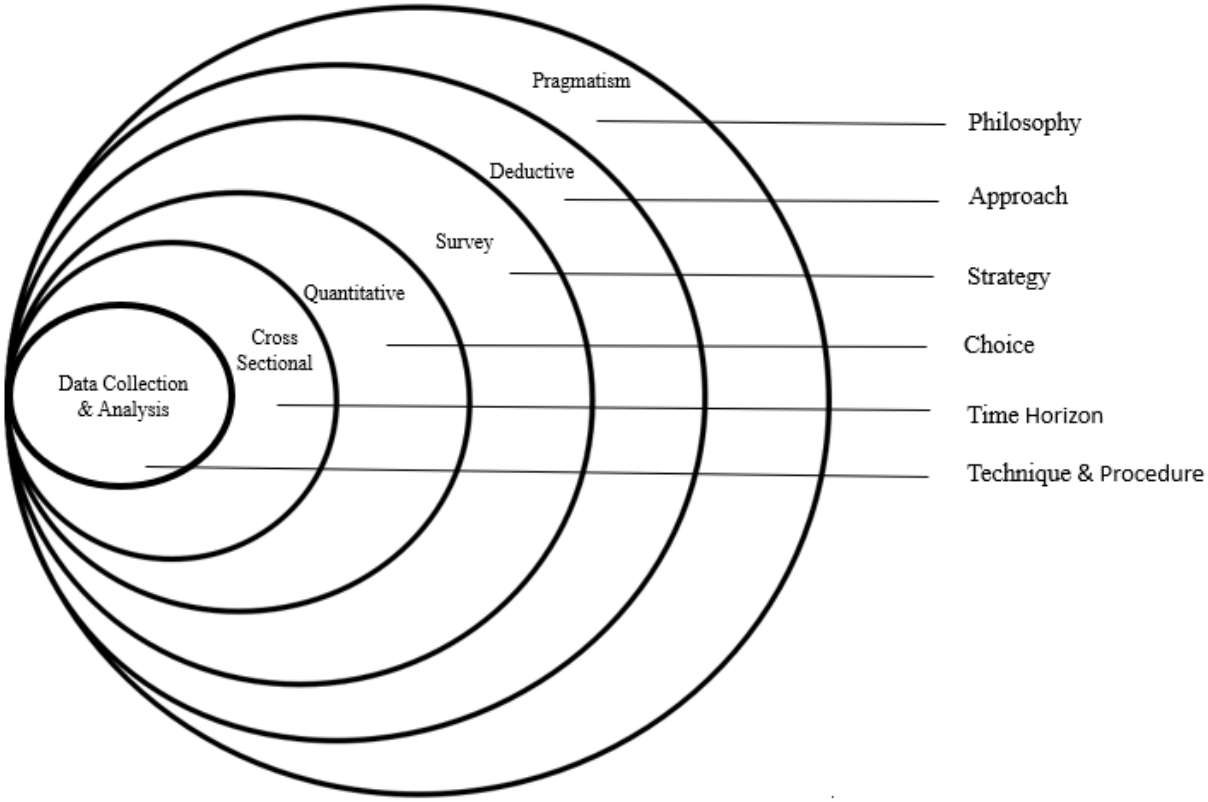
not control whether or not people chose to engage in the study. There were a limited number of institutions and individuals with the knowledge applicable to participate. It is possible that some institutions were missed and therefore not included. This also limited the generalizability of the study as those that did respond could not be said to represent all the programs or opinions of those that did not (Lindner, 2002; Lindner et al., 2001). The contextual factors associated with each specific institution would impact the findings and limit their applicability to other programs. In trying to encourage greater response rates, the number and scope of the questions was limited, thereby also limiting the amount of overall data to report and analyze.

Summary

The methodology utilized for this study followed the approach of the Saunders Research Onion (2007). I worked my way inward following the directives of philosophy, approach, strategy, choices, time horizon, data collection, and data analysis, narrowing down each step as I went (Figure 4). By acknowledging the practices that I utilized, as well as their limitations, the study should be not only relevant but reproducible.

Figure 4

Modified Saunders Research Onion


Pragmatism
Philosophy
Deductive
Approach
Survey
Strategy
Quantitative
Cross
Sectional
Choice
Data Collection
& Analysis
Time Horizon
Technique & Procedure

Chapter 4

Results

The purpose of this study was to evaluate the programmatic and curricular components of four-year equine degree programs being offered at post-secondary institutions throughout the United States. The types of degrees offered vary by the institution and include those that are equine species-specific as well as those that offer equine programming as part of a larger animal science or agricultural sciences degree. The main focus of the degrees may also lead to differing equine tracks or specializations such as those in direct care and use of the horse or those in secondary roles such as business, marketing, supply, or communications. The following research objectives guided the direction of the study:

1. Determine what types of four-year equine degree programs currently exist in the United States.
2. Determine what the objectives of a successful four-year equine degree program should be according to those responsible for their construction and facilitation.
3. Determine which curricula and experiences are considered to be the most important for equine students to be properly prepared to enter graduate school or employment in the equine industry upon graduation, according to those responsible for the construction and facilitation of the degree program.
4. Determine which resources are considered to be the most important in a successful and sustainable four-year equine degree program according to those responsible for their construction and facilitation.
5. Determine the educational outcomes of four-year equine degree programs according to those responsible for the construction and facilitation of the degree program.

The results of this study were obtained through the use of a question-based survey instrument that was administered by email. The instrument contained 29 questions pertaining to the following constructs: type of degree, recruitment strategies, curriculum, graduation rates and paths, resource allotment, and faculty characteristics. Questions had answer options that included multiple choice, Likert based summated scales, rank-order, and open-ended. The respondents, which included department heads and senior faculty members, were identified through an online search of post-secondary institutions that offered four-year equine education degree programs in the United States. The results will be presented by their relevance to each objective that guided the study.

Objective 1: Determine what types of four-year equine degree programs currently exist in the United States.

Objective one focused on the types of programs that currently house four-year equine degrees. These results will report on the institutions that were identified, their geographic location and the type of degree programs that they offer. Following the listing of potential respondents, the results will focus exclusively on the programs that fully participated in the research instrument. With the type of degree identified, the results will look at general student characteristics, to include overall student enrollment, percentage of equine specific students, and students' prior equine experience expectations upon entering the program.

The respondents were either department heads or senior faculty members in their program and were asked to report their age, gender, race, highest degree held, and years of industry experience prior to joining academia.

A combination of personal industry knowledge, as well as literature-based research identified 77 post-secondary institutions with a four-year, equine inclusive degree. It was

determined that 36 of these institutions had programs that were equine species-specific. The other 41 schools had either an equine specialization/concentration/focus/option or certificate program that required a minimum of 15 equine specific hours. The majority of those programs were housed under an animal science, agricultural sciences or business major. There was one school each that had programs under the major of Biomedical Science, Biology, Sport Recreation and Wellness Management, and Interdisciplinary Studies. Institutions that maintained only an equine minor or only an equine athletic program were not included. The institutions were located nationwide and represented 41 different states (Table 1) (Figure 5).

A total of 40 institutions or 51.9% provided complete responses (n = 40). There were three schools that started the survey but did not complete more than 80% of the questions, so their results were not included. The typical response rates for online surveys pertaining to education range anywhere from 2-30% (University of Connecticut, n.d.) making the 51.9% response rate for the current study above expectation.

Table 1

Comprehensive List of Post-Secondary Institutions with Four-Year Equine Degree Programs

Institution	Location	Degree Type
Auburn University	Auburn, AL	BS Animal Science/Equine Science Option
University of Arizona	Tucson, AZ	BS Animal Science/Equine Emphasis
Arkansas State University	Jonesboro, AR	BS Animal Science/Equine Management Emphasis
University of Arkansas	Fayetteville, AR	BS Animal Science/Equine Science
California Polytechnic San Luis Obispo	San Luis Obispo, CA	BS Animal Science/Equine Science Career Elective
California State University at Fresno	Fresno, CA	BS Animal Science/Equine Emphasis
Colorado State University	Fort Collins, CO	BS Equine Science
Post University	Waterbury, CT	BS Equine Studies
University of Connecticut	Mansfield, CT	BS Animal Science/Equine Interest
Delaware State University	Dover, DE	BS Agriculture/Equine Business Management
College of Central Florida	Ocala, FL	BS Business & Organizational Management/Equine Studies Specialization
Keiser University	Fort Lauderdale, FL	BS Biomedical Sciences/Equine Studies Concentration, BA Business Administration/Equine Studies Concentration
University of Florida	Gainesville, FL	BS Animal Science/Equine Specialization
Savannah College of Art & Design	Savannah, GA	BA Equestrian Studies
University of Georgia	Athens, GA	BS Animal & Dairy Science/Equine Program of Study

University of Hawaii at Hilo	Hilo, HI	BS Animal Science/Equine Science Certificate
St Mary of the Woods	St Mary of the Woods, IN	BS Equine Studies
Southern Illinois University at Carbondale	Carbondale, IL	BS Animal Science/Equine Science Specialization
University of Illinois	Champaign, IL	BS Animal Science/Companion & Equine Science Concentration
Iowa State University	Ames, IA	BS Animal Science/Equine Concentration
Kansas State University	Manhattan, KS	BS Animal Science & Industry/Equine Science Certificate
Asbury University	Wilmore, KY	BA Equine Science, BA Equine Studies, BA Equine Assisted Services
Midway University	Midway, KY	BS Equine Business, BS Equine Studies
Morehead State University	Morehead, KY	BS Equine Science
Murray State University	Murray, KY	BS Agriculture/Equine Management & Science Concentration
University of Kentucky	Lexington, KY	BS Equine Science & Management
University of Louisville	Louisville, KY	BS Equine Business
Western Kentucky University	Bowling Green, KY	BS Agriculture/Horse Science Concentration
McNeese State University	Lake Charles, LA	BS Agricultural Science/Equine Science Concentration
University of Maine	Orono, ME	BS Animal & Veterinary Science/Equine Studies Certificate
University of Massachusetts at Amherst	Amherst, MA	BS Animal Science/Equine Science Concentration
University of Minnesota at Crookston	Crookston, MN	BS Equine Science

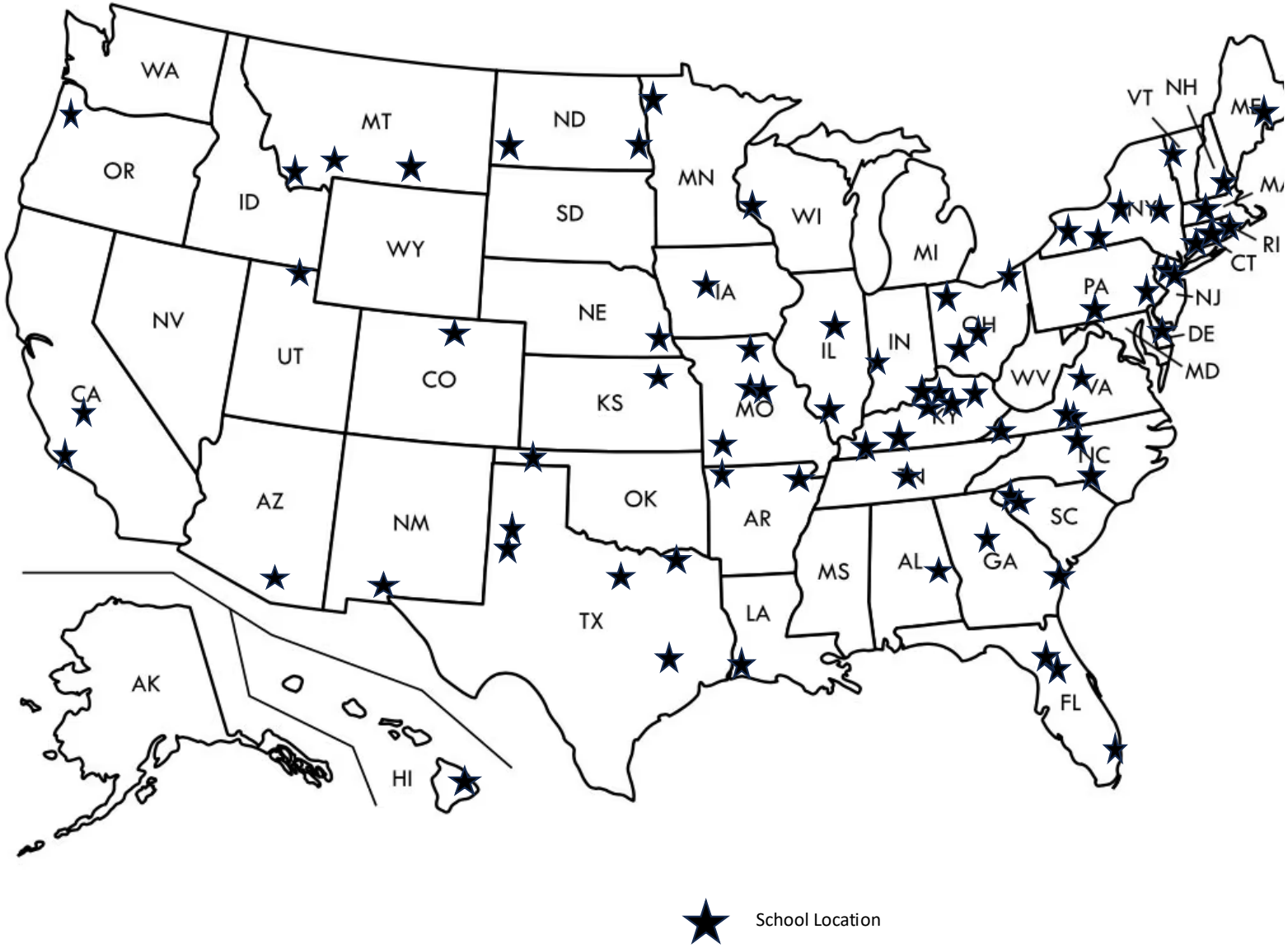
Missouri State University	Springfield, MO	BS Equine Science
Stephens College	Columbia, MO	BS Equestrian Studies
Truman State University	Kirksville, MO	BS Agricultural Science/Equine Science Specialization
University of Missouri	Columbia, MO	BS Animal Science/Equine Science & Management Certificate
William Woods University	Fulton, MO	BS Equestrian Science, BS Equine Administration, BS Equine General Studies
Montana State University	Bozeman, MT	BS Animal science/Equine Science Option
Rocky Mountain College	Billings, MT	BS Equestrian Studies
University of Montana Western	Dillon, MT	BS Natural Horsemanship
University of Nebraska at Lincoln	Lincoln, NE	BS Animal Science/Equine Option
University of New Hampshire	Durham, NH	BS Equine Studies
Centenary University	Hackettstown, NJ	BS Equine Studies, BS Equine Science
Rutgers University	New Brunswick, NJ	BS Animal Science/Equine Science Track
New Mexico State University	Las Cruces, NM	BS Animal Science/Equine Science Option, Equine Industry Option
Alfred University	Alfred, NY	BS Equine Business Management
Houghton University	Houghton, NY	BS Sport, Recreation & Wellness Management/Equestrian Studies Concentration
SUNY at Cobleskill	Cobleskill, NY	BS Therapeutic Horsemanship
SUNY at Morrisville	Morrisville, NY	BS Animal Science/Equine Management Certificate

North Carolina A&T State University	Greensboro, NC	BT Equine Science
St Andrews University	Laurinburg, NC	BS Biology/Equine Science Specialization, BA Business Administration/Equine Business Management Specialization
Dickinson State University	Dickinson, ND	BS Agricultural Studies/Equine Option
North Dakota State University	Fargo, ND	BS Equine Science
Lake Erie College	Painesville, OH	BS Equine Teacher/Trainer, BS Equine Facility Management, BS Equine Therapeutic Horsemanship, BS Equine Pre-Veterinary Science, BA Equine Business Administration
Otterbein University	Westerville, OH	BS Equine Pre-Veterinary Medicine, BA Equine Business Management
University of Findlay	Findlay, OH	BS Equine Business Management, BS Equestrian Studies
Wilmington College	Wilmington, OH	BA Equine Business Management
Oklahoma Panhandle State University	Goodwell, OK	BS Animal Science/Equine Option
Oregon State University	Corvallis, OR	BS Animal Science/Equine Option
Delaware Valley University	Doylestown, PA	BS Equine Science, BS Equine Management
Wilson College	Chambersburg, PA	BS Equine Studies
Johnson & Wales University	Providence, RI	BS Equine Studies
Clemson University	Clemson, SC	BS Animal & Veterinary Sciences/Equine Business Concentration

Lander University	Greenwood, SC	BS Interdisciplinary Studies/Equine Assisted Activities & Therapies
Middle Tennessee State University	Murfreesboro, TN	BS Horse Science
Tarleton State University	Stephenville, TX	BS Animal Science/Equine Science Certificate
Texas A&M at Commerce	Commerce, TX	BS Equine Studies
Texas A&M	College Station, TX	BS Animal Science/Equine Science Certificate
Texas Tech University	Lubbock, TX	BS Animal Science/Equine Science Concentration
West Texas A&M	Canyon, TX	BS Equine Industry & Business
Utah State University	Logan, UT	BS Equine Science & Management
University of Vermont	Burlington, VT	BS Animal & Veterinary Science/Equine Science Option
Averett University	Danville, VA	BS Equestrian Studies
Emory & Henry University	Emory, VA	BS Equine Studies
Ferrum College	Ferrum, VA	BS Agricultural Science/Equine Studies Emphasis
Sweet Briar College	Sweet Briar, VA	BA Business/Equine Studies Management Certificate, BA Business/Equine Studies Teaching Certificate
University of Wisconsin at River Falls	River Falls, WI	BS Animal Science/Equine Option

Figure 5

United States Map with Location of Identified Institutions


WA
OR
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AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
VT
NH
ME
MA
RI
CT
NJ
DE
MD
AK
HI
School Location

Degree Program Types

The types of programs varied by institution. The options given for selection were an equine specific program (for example: equine science, equine studies, equine business, etc.), an agricultural sciences program with an equine focus/specialization/concentration/certificate/etc., an animal science program with an equine focus/specialization/concentration/certificate/etc., or a business, pre-professional, interdisciplinary studies, etc. program with an equine focus/specialization/concentration/certificate/etc. Of the 40 responding institutions 24 (60.0%) reported an equine specific degree program (equine science, equine studies, equine business, etc.), three (7.5%) reported a degree in agricultural sciences with an equine focus/specialization/concentration/certificate/etc., 12 (30.0%) reported a degree in animal science with an equine focus/specialization/concentration/certificate/etc., and one (2.5%) reported a degree program that was business, pre-professional, interdisciplinary studies, etc. with an equine focus/specialization/concentration/certificate/etc. (Table 2).

Table 2

Reported Program Types of Participating Institutions

Program Type	*f*	%
Equine specific	24	60.0
Agricultural science/Equine	3	7.5
Animal science/Equine	12	30.0
Other/Equine	1	2.5

Student Enrollment

Student enrollment was reported for all four years of the program, including freshman, sophomores, juniors, and seniors. This number may include non-equine students depending on the program. For ease of reporting and analysis, the responses were grouped by increments of 50. Sixteen (40.0%) reported 0-50 students, eight (20.0%) reported 51-100 students, nine

(22.5%) reported 101-150 students, one (2.5%) reported 151-200 students, one (2.5%) reported 201-250 students, one (2.5%) reported 251-300 students, and four (10.0%) reported 300 or more students were enrolled in their program over all four years (Table 3).

Table 3

Number of Students Enrolled in the Program Over all Four Years

Number of students	*f*	*%*
0-50	16	40.0
51-100	8	20.0
101-150	9	22.5
151-200	1	2.5
201-250	1	2.5
251-300	1	2.5
300+	4	10.0

Equine Student Enrollment

Equine specific student enrollment was reported for each program. For those with a non-equine specific program three (7.5%) reported 1-10% of their population was specifically equine focused, five (12.5%) reported that 11-20% of their population was specifically equine focused, one (2.5%) reported that 21-30% of their population was specifically equine focused, one (2.5%) reported that 41-50% of their population was specifically equine focused, one (2.5%) reported that 51-60% of their population was specifically equine focused, and one (2.5%) reported that 71-80% of their population was specifically equine focused, and 28 (70.0%) of respondents reported that their program was equine specific and that 100% of their student population was specifically equine focused (Table 4).

Table 4

Percentage of Equine Specific Students in the Program

Percentage of equine students	*f*	*%*
0%	0	0
1-10%	3	7.5
11-20%	5	12.5
21-30%	1	2.5
31-40%	0	0
41-50%	1	2.5
51-60%	1	2.5
61-70%	0	0
71-80%	1	2.5
81-90%	0	0
91-99%	0	0
100%	28	70.0

Prior Equine Experience

The amount of prior experience that is required for students entering the program was reported, the majority reported that no prior equine experience was necessary to enter the program ($M = 3.48$, $SD = 0.93$). Five scale levels of vague qualifiers representing experience levels were given as options 35 (87.5%) reported no experience was required, two (5.0%) reported some exposure was required, three (7.5%) reported a basic skill set was required, no responding institutions reported an intermediate or advanced skill set was required prior to entering the program (Table 5).

Table 5

Level of Equine Experience Required of Students Entering the Program

Level of experience required	*f*	*%*
None	35	87.5
Some exposure	2	5.0
Basic skill set	3	7.5
Intermediate skill set	0	0
Advanced skill set	0	0

The level of prior equine experience believed to be most beneficial to students upon entering an equine degree was reported, the majority believed some exposure, or a basic skill set was ideal (M = 3.55, SD = 0.68). Five vague qualifiers of experience were given as options eight (20.0%) reported they believed no experience was necessary, 16 (4.0.0%) reported some exposure was necessary, 14 (35.0%) reported a basic skill set was necessary, two (5.0%) reported an intermediate skill set was necessary, and no responding institutions reported an advanced skill set was necessary to be successful upon graduation (Table 6).

Table 6

Level of Experience Believed to be Needed Prior to Entering Program to be Successful

Level of experience believed to be needed	*f*	%
None	8	20.0
Some exposure	16	40.0
Basic skill set	14	35.0
Intermediate skill set	2	5.0
Advanced skill set	0	0

Respondent Characteristics

The program professionals were asked to report the characteristic information of those responding, department heads, senior faculty, program leads, etc. in an attempt to determine who is making decisions and teaching or leading the equine group at that institution.

The average respondent was 41-60 years of age (M = 3.45, SD = 1.22). One (2.5%) reported they were aged 18-30, nine (22.5%) reported they were aged 31-40, 12 (30%) reported they were aged 41-50, eight (20.0%) reported they were aged 51-60, nine (22.5%) reported they were aged 61-70, and one (2.5%) reported they were aged 70 or older (Table 7).

Table 7

Reported Age of Department Head, Senior Faculty, or Program Lead Responding

Age group	*f*	*%*
18-30	1	2.5
31-40	9	22.5
41-50	12	30.0
51-60	8	20.0
61-70	9	22.5
70+	1	2.5

The average respondent was female (M = 1.78, SD = 0.58). Eleven (27.5%) reported male, 28 (70.0%) reported female, and one (2.5%) preferred not to report their gender (Table 8).

Table 8

Reported Gender of Department Head, Senior Faculty, or Program Lead Responding

Gender	*f*	*%*
Male	11	27.5
Female	28	70.0
Non-binary/third gender	0	0
Prefer not to say	1	2.5

The average reported race for respondents was White or Caucasian (M = 3.13, SD = 0.79). Thirty-nine (97.5%) reported Caucasian/white, one (2.5%) preferred not to report race and none of respondents reported as Asian, Black/African American, Hispanic, Indian, Native American, or Other (Table 9).

Table 9

Reported Race of Department Head, Senior Faculty, or Program Lead Responding

Race	*f*	*%*
Asian	0	0
Black/African American	0	0
Caucasian/White	39	97.5
Hispanic	0	0
Indian	0	0
Native American	0	0
Other	0	0
Prefer not to say	1	2.5

When asked about the highest level of education achieved, twenty (50.0%) reported they had earned a Ph.D., three (7.5%) reported they had earned a D.V.M., 14 (35.0%) reported having earned a master's degree, and five (12.5%) reported having earned a bachelor's degree as their highest degree. None of the respondents indicated high school/GED, associate's degree, or Ed.D. as the highest degree earned. Two (5.0%) of those with a Ph.D. also reported holding a D.V.M. degree (Table 10).

Table 10

Respondents Highest Degree Earned

Degree	*f*	*%*
PhD	20	50.0
EdD	0	0.0
DVM	3	7.5
MS/MA/MEd/MT	14	35.0
BS/BA/BT	5	12.5
AA/AS/AM/AT	0	0.0
High School/GED	0	0.0

Given grouped response categories in five-year increments, respondents were asked to report how many years of equine industry experience they had prior to joining academia, the

average respondent had six to 15 years of equine industry experience prior to joining academia (M = 2.55, SD = 1.41). Twelve (30.0%) reported zero to five years of equine industry experience, 11 (27.5%) reported six to 10 years of equine industry experience, five (12.5%) reported 11-15 years of equine industry experience, seven (17.5%) reported 16-20 years of equine industry experience, and five (12.5%) reported 20 or more years of equine industry experience prior to joining academia (Table 11).

Table 11

Respondents' Reported Years of Equine Industry Experience Prior to Joining Academia

Years of equine industry experience	*f*	%
0-5	12	30.0
6-10	11	27.5
11-15	5	12.5
16-20	7	17.5
20+	5	12.5

Objective 2: Determine what the objectives of a successful four-year equine degree program should be according to those responsible for their construction and facilitation.

In an open text format, respondents were asked what the objectives of a successful four-year equine degree program should be. To further facilitate and focus responses (Lincoln & Guba, 1984) they were given the examples "To produce students with a working knowledge of equine management" or "To produce students who can successfully compete for positions in the equine industry." Of the total number of respondents 33 (82.5%) responded with one or more of the following statements in no particular order (Table 12).

Following a systematic thematic analysis of responses, it was determined that the common themes which emerged throughout the statements were equine knowledge and skills

through the use of experiential learning, preparation for careers in the equine industry, personal and professional development both while in school and in the future, and awareness of current issues in the equine industry.

Table 12

Objectives of a Successful Fou-Year Equine Degree Program

Respondent	Objective
1	To enter grad school or the work force at least mid-level.
2	To produce graduates that have a strong knowledge of all aspects of equine management and can successfully immerse themselves in a career in a growing equine industry.
3	To produce students with a strong understanding of the business aspects of the equine industry. Horse knowledge and skills are important, but can more easily be obtained from internships, part-time jobs, clubs/teams. It is very difficult to learn marketing, management, economics, current issues, legal issues, etc. from life experiences, that is much easier to obtain through formal education. Business knowledge is what set people apart from those that are good with horses, but have never been able to have a career, from those that are successful managers/trainers/farm owners/business owners/sales/etc.
4	Prepare graduates that can ask meaningful questions and use science/data to answer them to fulfill societal demands for equine resources.
5	Promotes basics and work ethic.
6	To develop students with a commitment to strengthening the equine industry, regardless of their interest area, employment status, or animal ownership.
7	Understand the industry is ever evolving and shifting from tradition. Animal/equine welfare, license to practice, and current issues need to be more front and center in equine-related courses and curricula. Precision health and role of horses in society should be emphasized. Less "riding programs" and more "science" and "business" equine programs.
8	To produce students with horseman-like knowledge and skills.
9	To give the students the knowledge to successfully gain employment in the equine field.

10	Students who can successfully compete and work well in the equine industry.
11	Students have working knowledge of equine management. Students have the necessary professional skills to compete for positions within the industry. Students should have an awareness of current issues facing the equine industry. Students should have a foundational skillset to safely handle horses. Develop teamwork and communication skills for effective operational management within the equine industry.
12	To produce students that understand and can apply their knowledge of horse health/care in the equine industry. Students who are passionate about the industry and who have integrity and want the best care for the horse. Students who are skilled and knowledgeable enough to step directly into management/trainer positions upon graduation.
13	Both of the above. Ours focuses on science. Others focus on training/riding. Those are very different programs. Ours focuses on science, and our students wouldn't be ready to go be horse trainers. They would need a very different curriculum. So, it all depends on what type of program you have.
14	Prepare them to be professional, teachable, problem solvers, communicators and self-starters.
15	To produce high quality students with a fundamental, working equine knowledge who are prepared to immediately make an impact on the industry.
16	To produce employable students with strong work ethic and willingness to continue to learn and improve.
17	Equipping students with skills that result in them being competitive for a variety of positions with ranches, pharmaceutical companies, veterinary clinics and more.
18	To produce students who can successfully compete for positions in the equine industry.
19	For us it is two-fold, develop a strong working knowledge of equine production and management in our particular environment (northern great plains) and the skills necessary to be successful in a customer-oriented environment.
20	Solid academic foundation (equine science and other) combined with essential employability skills like problem solving, critical thinking, teamwork, quantitative literacy, analytical reasoning, and ethical reasoning.

21	To adequately equip students with the hands-on skills and knowledge to be a competent and ethical member of the equine industry.
22	To educate and prepare students to be successful in the equine industry with both intellectual knowledge and hands-on skills.
23	I think that when a student graduates, they should have the basic skills and knowledge to begin a career in the equine industry, but I do not expect them to leave school knowing everything experienced industry experts know. Learning is a lifelong process. We specialize in having students who did not have opportunity to grow up on a horse farm or have limited experience with horses and learn safe correct methods of handling and riding horse that will enable them to work in the equine industry where without us they would not have this opportunity. We do have experienced students, and their biggest gains are learning the science behind many of the industry practices.
24	To produce students who are industry-ready for entry-level managerial jobs. Solid knowledge and skills base for general horse husbandry, injury/disease prevention practices.
25	A program should graduate students that are competent in all facets of the equine industry and have communication skills to handle people as well as the horses.
26	Students should graduate with both knowledge and practical skills to successfully work and communicate within the industry with both horses and people
27	To produce knowledgeable, well-rounded equine professionals capable of maintaining the pace and rigor of the industry while prioritizing the horse's well-being.
28	To produce students who can comfortably and knowledgeably manage multiple horses and the surrounding facility.
29	To develop equestrian professionals who can adapt and be innovative in a wide variety of fields within the equine industry.
30	To produce students who are current on modern industry practices for their intended field while having a broad range knowledge of the entire Equine market, both nationally and globally (to a lesser degree unless needed).
31	To equip students with a combination of quality equine education and experiential training to prepare them for a wide range of equine industry careers.
32	Producing students with knowledge and skills to be successful in some aspect of agriculture and the horse industry.

33	Our program combines a strong foundation in core sciences with specialized, hands-on training in equine care and management, preparing students for diverse careers in the equine industry.

Objective 3: Determine which curricula and experiences are considered to be the most important for equine students to be properly prepared to enter graduate school or employment in the equine industry upon graduation according to those responsible for the construction and facilitation of the degree program.

To assess which curricula and experiences were considered to be the most beneficial for students, the program professionals were provided with 20 course topics determined to be common in equine programming from past studies and were asked to rate them on their level of importance for students to be successful upon graduation. Along with this curricular theme, respondents were also asked about specialized tracks within a major, and lecture time versus laboratory time. Data were then reported for which extra-curricular activities were deemed the most important for students to participate in while enrolled in their degree program.

Course Topics

Respondents were asked to rate a number of course topics based upon their perceived level of importance for equine students to be successful upon graduation. The types of course topics chosen were based on a curricula review and were grouped together by content rather than title. The 20 types of course topics chosen were included in 50% or more of the curricula of the 77 schools that were chosen to participate in the study. Respondents were then asked to use a Likert type summated scale to select their perceived level of importance. The available options ranged from one equals “not at all important”, to five equals “extremely important”. The five

courses which were rated the most important for students to be successful upon graduation were: equine care and management (M = 4.78, SD = 0.58), communications (M = 4.55, SD = 0.60), equine health and diseases (M = 4.43, SD = 0.78), equine specific anatomy and physiology (M = 4.22, SD = 0.77), and equine specific nutrition (M = 4.13, SD = 0.85). The five courses which were rated as the least important for students to be successful upon graduation were: genetics (M = 2.80, SD = 0.97), general reproduction (M = 2.93, SD = 0.97), riding with a horse/training focus (M = 3.10, SD = 1.17), teaching and instruction (M = 3.23, SD = 1.17), and riding with a rider/equitation focus (M = 3.20, SD = 0.99) (Table 13).

Table 13

Individual Course Topic Ranking

Course	*M*	*SD*	Mode
General nutrition	3.55	0.99	3*
Equine specific nutrition	4.13	0.85	3
General Anatomy/Physiology	3.33	0.84	3
Equine specific anatomy/physiology	4.22	0.77	4
General reproduction	2.93	0.97	4
Equine specific reproduction	3.53	0.88	4
Genetics	2.80	0.97	3
Equine care/management	4.78	0.58	5
Equine health/diseases	4.43	0.78	5
Riding – rider/equitation focus	3.20	0.99	3
Riding – horse/training focus	3.10	1.17	3
Teaching/instruction	3.23	1.17	3
Sales/marketing	3.48	0.93	3*
Economics/accounting	3.55	0.68	3
Facility design/management	3.50	0.75	3*
Behavior	4.03	0.86	4
Evaluation/selection/judging	3.40	1.03	3
Careers/industry	4.10	0.94	5
Current issues	4.10	0.87	5
Communications	4.55	0.60	5

*Note. * multiple modes exist, the smallest value is shown*

In an effort to determine if equine specific programs would rate the importance of coursework differently than non-equine specific programs, a t-test for equality of means was calculated for each course.

There was a statistically significant difference in the importance of a course in behavior between equine specific ($M = 3.79$, $SD = 0.88$) and non-equine specific ($M = 4.38$, $SD = 0.72$) programs $t(38) = 2.20$, $p < .05$, $d = 0.71$ with a large effect size, with non-equine specific programs rating behavior as more important. There was a statistically significant difference in the importance of a course in careers and industry between equine specific ($M = 4.38$, $SD = 0.71$) and non-equine specific ($M = 3.67$, $SD = 1.11$) programs $t(38) = 2.43$, $p < .05$, $d = 0.80$ with a large effect size, with equine specific programs rating a course in careers and industry as more important. There was a statistically significant difference in the importance of a course in equine specific reproduction between equine specific ($M = 3.29$, $SD = 0.86$) and non-equine specific ($M = 3.88$, $SD = 0.81$) programs $t(38) = 2.16$, $p < .05$, $d = 0.70$ with a large effect size, with non-equine specific programs rating a course in equine specific reproduction as more important. There was a statistically significant difference in the importance of a course in teaching and instruction between equine specific ($M = 3.50$, $SD = 1.25$) and non-equine specific ($M = 2.81$, $SD = 0.91$) programs $t(38) = 1.89$, $p < .05$, $d = 0.61$ with a large effect size, with equine specific programs rating a course in teaching and instruction as more important. There was a statistically significant difference in the importance of a course in general reproduction between equine specific ($M = 2.71$, $SD = 1.04$) and non-equine specific ($M = 3.25$, $SD = 0.78$) programs $t(38) = 1.78$, $p < .05$, $d = 0.57$ with a large effect size, with non-equine specific programs rating a course in general reproduction as more important. There was a statistically significant difference in the importance of a course in genetics between equine specific ($M = 2.50$, $SD = 0.98$) and non-

equine specific (M = 3.25, SD = 0.78) programs $t(38) = 2.57$, $p < .05$, $d = 0.83$ with a large effect size, with non-equine specific programs rating a course in genetics as more important.

There was no statistically significant difference in the importance of a course on equine care and management between equine specific (M = 4.75, SD = 0.67) and non-equine specific (M = 4.81, SD = 0.40) programs $t(38) = 0.33$, $p > .05$, $d = 0.11$ with a small effect size. There was no statistically significant difference in the importance of a course in communications between equine specific (M = 4.54, SD = 0.51) and non-equine specific (M = 4.56, SD = 0.73) programs $t(38) = 0.11$, $p > .05$, $d = 0.03$ with a small effect size. There was no statistically significant difference in the importance of a course in equine health and diseases between equine specific (M = 4.38, SD = 0.82) and non-equine specific (M = 4.50, SD = 0.73) programs $t(38) = 0.49$, $p > .05$, $d = 0.16$ with a small effect size. There was no statistically significant difference in the importance of a course in equine specific anatomy and physiology between equine specific (M = 4.17, SD = 0.76) and non-equine specific (M = 4.31, SD = 0.79) programs $t(38) = 0.58$, $p > .05$, $d = 0.19$ with a small effect size. There was no statistically significant difference in the importance of a course on equine specific nutrition between equine specific (M = 4.13, SD = 0.80) and non-equine specific (M = 4.13, SD = 0.96) programs $t(38) = 0.00$, $p > .05$, $d = 0.00$ with a small effect size. There was no statistically significant difference in the importance of a course in current issues between equine specific (M = 4.17, SD = 0.82) and non-equine specific (M = 4.00, SD = 0.97) programs $t(38) = 0.59$, $p > .05$, $d = 0.19$ with a small effect size. There was no statistically significant difference in the importance of a course on general nutrition between equine specific (M = 3.46, SD = 1.06) and non-equine specific (M = 3.69, SD = 0.87) programs $t(38) = 0.72$, $p > .05$, $d = 0.23$ with a medium effect size. There was no statistically significant difference in the importance of a course in economics and accounting between equine specific (M = 3.58, SD =

0.72) and non-equine specific (M = 3.50, SD = 0.63) programs $t(38) = 0.38$, $p > .05$, $d = 0.12$ with a small effect size. There was no statistically significant difference in the importance of a course in facility design and management between equine specific (M = 3.54, SD = 0.83) and non-equine specific (M = 3.44, SD = 0.63) programs $t(38) = 0.43$, $p > .05$, $d = 0.14$ with a small effect size. There was no statistically significant difference in the importance of a course in sales and marketing between equine specific (M = 3.54, SD = 0.93) and non-equine specific (M = 3.38, SD = 0.96) programs $t(38) = 0.55$, $p > .05$, $d = 0.18$ with a small effect size. There was no statistically significant difference in the importance of a course in evaluation, selection, and judging between equine specific (M = 3.42, SD = 1.06) and non-equine specific (M = 3.38, SD = 1.03) programs $t(38) = 0.12$, $p > .05$, $d = 0.04$ with a small effect size. There was no statistically significant difference in the importance of a course in general anatomy and physiology between equine specific (M = 3.17, SD = 0.78) and non-equine specific (M = 3.56, SD = 0.89) programs $t(38) = 1.45$, $p > .05$, $d = 0.47$ with a medium effect size. There was no statistically significant difference in the importance of a course in riding with a rider or equitation focus between equine specific (M = 3.25, SD = 1.13) and non-equine specific (M = 3.13, SD = 0.81) programs $t(38) = 0.39$, $p > .05$, $d = 0.13$ with a small effect size. There was no statistically significant difference in the importance of a course in riding with a horse and training focus between equine specific (M = 3.13, SD = 1.36) and non-equine specific (M = 3.06, SD = 0.85) programs $t(38) = 0.16$, $p > .05$, $d = 0.05$ with a small effect size (Table 14).

Table 14

Comparison of Course Ranking Between Equine Specific and Non-Equine Specific Programs

Course	Program Type	*M*	*SD*	*d*
Equine care/management	Equine specific	4.75	0.67	0.11
	Non-equine specific	4.81	0.40	
Communications	Equine specific	4.54	0.51	0.03
	Non-equine specific	4.56	0.73	
Equine health/diseases	Equine specific	4.38	0.82	0.16
	Non-equine specific	4.50	0.73	
Equine specific anatomy/physiology	Equine specific	4.17	0.76	0.19
	Non-equine specific	4.31	0.79	
Equine specific nutrition	Equine specific	4.13	0.80	0.00
	Non-equine specific	4.13	0.96	
Behavior	Equine specific	3.79	0.88	0.71
	Non-equine specific	4.38	0.72	
Current issues	Equine specific	4.17	0.82	0.19
	Non-equine specific	4.00	0.97	
Careers/industry	Equine specific	4.38	0.71	0.80
	Non-equine specific	3.67	1.11	
General nutrition	Equine specific	3.46	1.06	0.23
	Non-equine specific	3.69	0.87	
Equine specific reproduction	Equine specific	3.29	0.86	0.70
	Non-equine specific	3.88	0.81	
Economics/accounting	Equine specific	3.58	0.72	0.12
	Non-equine specific	3.50	0.63	
Facility design/management	Equine specific	3.54	0.83	0.14
	Non-equine specific	3.44	0.63	
Sales/marketing	Equine specific	3.54	0.93	0.18
	Non-equine specific	3.38	0.96	
Evaluation/selection/judging	Equine specific	3.42	1.06	0.04
	Non-equine specific	3.38	1.03	
General anatomy/physiology	Equine specific	3.17	0.78	0.47
	Non-equine specific	3.56	0.89	
Riding – rider/equitation focus	Equine specific	3.25	1.13	0.13
	Non-equine specific	3.13	0.81	
Teaching/instruction	Equine specific	3.50	1.25	0.61
	Non-equine specific	2.81	0.91	
Riding – horse/training focus	Equine specific	3.13	1.36	0.05
	Non-equine specific	3.06	0.85	
General reproduction	Equine specific	2.71	1.04	0.57
	Non-equine specific	3.25	0.78	
Genetics	Equine specific	2.50	0.98	0.83
	Non-equine specific	3.25	0.78	

Degree Tracking

Respondents were asked to rate the level of agreement, on a Likert type scale with vague qualifiers from strongly agree to strongly disagree, they had to the statement "Equine degrees should include multiple tracking options (For example: business, science, therapeutics, etc.)". The average respondent somewhat agreed with the statement (M = 2.08, SD = 1.07). Fourteen (35.0%) respondents indicated they strongly agreed with the statement, 15 (37.5%) respondents indicated they somewhat agreed with the statement, six (15.0%) respondents indicated they neither agreed nor disagreed with the statement, four (10.0%) respondents indicated they somewhat disagreed with the statement, and one (2.5%) respondent indicated they strongly disagreed with the statement (Table 15).

Table 15

Respondents Opinions of Including Multiple Tracks in Equine Degrees

Opinion	*f*	%
Strongly agree	14	35.0
Somewhat agree	15	37.5
Neither agree nor disagree	6	15.0
Somewhat disagree	4	10.0
Strongly disagree	1	2.5

Respondents were asked to choose from one of three statements about specialized tracks in equine education. In those responses four (10.0%) reported specialized tracks take away from a general equine knowledge base, 10 (25.0%) reported specialized tracks allow students to specialize for their entire education, and 26 (65.0%) reported specialized tracks should be offered once core knowledge has been gained (Table 16).

Table 16

Respondents Opinions on Specialized Tracts

Opinion	*f*	%
Take away from a general equine knowledge base	4	10.0
Allow students to specialize for their entire education	10	25.0
Should be offered once core knowledge has been gained	26	65.0

Lecture versus Laboratory

Respondents were asked to report what percentage of classes in an equine specific program should be lecture based versus laboratory based. The average response indicated that lectures should account for 31-50% of the programming ($M = 47.63$, $SD = 16.84$). Three (7.5%) indicated lectures should account for 11-20% of programming, five (7.5%) indicated lectures should account for 21-30% of programming, nine (22.5%) indicated lectures should account for 31-40% of programming, 12 (30.0%) indicated lectures should account for 41-50% of programming, five (12.5%) indicated lectures should account for 51-60% of programming, three (7.5%) indicated lectures should account for 61-70% of programming, two (5.0%) indicated lectures should account for 71-80% of programming, and one (2.5%) indicated lectures should account for 91-100% of programming (Table 17).

Table 17

Percentage of Lecture Based Classes

Lecture	*f*	*%*
0-10%	0	0
11-20%	3	7.5
21-30%	5	12.5
31-40%	9	22.5
41-50%	12	30.0
51-60%	5	12.5
61-70%	3	7.5
71-80%	2	5.0
81-90%	0	0
91-100%	1	2.5

The average response indicated that laboratories should account for 31-50% of the programming ($M = 52.38$, $SD = 16.84$). One (2.5%) indicated laboratories should account for 0-10% of programming, one (2.5%) indicated laboratories should account for 11-20% of programming, four (10.0%) indicated laboratories should account for 21-30% of programming, four (10.0%) indicated laboratories should account for 31-40% of programming, 13 (32.5%) indicated laboratories should account for 41-50% of programming, six (15.0%) indicated laboratories should account for 51-60% of programming, seven (17.5%) indicated laboratories should account for 61-70% of programming, four (10.0%) indicated laboratories should account for 71-80% of programming, no respondents indicated laboratories should account for more than 80% of programming (Table 18).

Table 18

Percentage of Lab Based Classes

Lab	*f*	*%*
0-10%	1	2.5
11-20%	1	2.5
21-30%	4	10.0
31-40%	4	10.0
41-50%	13	32.5
51-60%	6	15.0
61-70%	7	17.5
71-80%	4	10.0
81-90%	0	0
91-100%	0	0

Extracurricular Activities

Respondents were asked to report upon which extracurricular activities they felt were the most important for students to have participated in during their collegiate years to be successful in the equine industry upon graduation. All 40 (100.0%) indicated students should participate in an internship experience before graduation, 35 (87.5%) indicated students should have some type of employment in the equine industry before graduation, 10 (25.0%) indicated students should participate in some type of showing or exhibition environment before graduation, 13 (32.5%) indicated students should participate in some type of educational clinic before graduation, 30 (75.0%) reported students should participate in university sponsored clubs or student organizations before graduation, and four (10.0%) reported other. In an open response field, those that responded other indicated that students should complete a non-intern work exploration program, participate in judging or competitive teams, participate in organized networking activities, or participate in some type of activity specific to the field they wanted to join before graduation (Table 19).

Table 19

Respondents Report of Suggested Extracurricular Activities to be Successful Upon Graduation

Activity	*f*	*%*
Internships	40	100.0
Industry employment	35	87.5
Showing	10	25.0
Clinics	13	32.5
Clubs/Student organizations	30	75.0
Other	4	10.0

Objective 4: Determine which resources are considered to be the most important in a successful and sustainable four-year equine degree program according to those responsible for their construction and facilitation.

In this section the results will report on which resources the program professionals believed to be most important for a four-year equine degree program. Results began with recruitment followed by those resources considered most important within the curriculum. In support of curricula, data are primarily in the categories of faculty and horses. Information on which resources outside of the curriculum are considered to be the most important or needed to support a four-year equine degree program are reported last.

Recruitment

How institutions recruited students to their program was reported. The instrument contained six options and an "other" category with an open text response. Respondents were able to select all or as many of the options as applied. Of the choices provided 32 (80.0%) reported utilizing university-based, non-program specific methods, 19 (47.5%) reported utilizing online, program specific methods, 21 (52.5%) reported they recruited through horse shows and/or clinics, 34 (85.0%) reported they recruited by word of mouth and/or alumni, eight

(20.0%) reported recruitment by way of scholarship opportunities, 25 (62.5%) reported recruiting through youth organizations such as 4-H, Pony Club, FFA, etc. Four (10.0%) of respondents reported other methods of recruiting, and provided participation in trade shows, expos, and clubs; recruitment for university based competitive equine teams; and recruitment through other university equine programs and facilities as recruitment strategies. Questions on the effectiveness of any of these strategies were not asked (Table 20).

Table 20

Recruitment Techniques

Recruitment Techniques	*f*	%
University based	32	80.0
Online	19	47.5
Horse shows/clinics	21	52.5
Word of mouth/alumni	34	85.0
Scholarships	8	20.0
Youth organizations	25	62.5
Other	4	10.0

Resources

The program professionals were asked to rank seven different curricular resources on their perceived level of importance for a successful four-year equine degree program. The resources were chosen based on a thorough examination of the literature and were vetted by a panel of academic and industry leaders. Those resources included horses, barns/stalls, arenas, classrooms/laboratory space, technology, textbooks/materials, and industry specific teaching professionals. The resources, when ranked by the respondents (n = 40), were as follows, starting with one equals the most important and finishing with seven equals the least important. Most important were horses (M = 1.73, SD = 0.99), followed by industry specific teaching professionals (M = 3.25, SD = 2.02), barns/stalls (M = 3.73, SD = 1.41), classrooms/laboratory

space (M = 4.00, SD = 1.84), arenas (M = 4.38, SD = 1.70), technology (M = 5.38, SD = 1.46), and textbooks/materials (M = 5.55, SD = 1.67) was ranked as the least important resource within the curriculum (Table 21).

Table 21

Mean Ranking of Resources Within the Curriculum

Resources	*M*	*SD*	Mode	Range
Horses	1.73	0.99	1	1,5
Industry specific Professionals	3.25	2.02	2	1,7
Barns/stalls	3.73	1.41	3	1,7
Classrooms/laboratory space	4.00	1.84	5	1,7
Arenas	4.38	1.70	4	2,7
Technology	5.38	1.46	7	2,7
Textbooks/materials	5.55	1.67	7	1,7

In an effort to determine if equine specific programs would rank their resource needs differently from non-equine specific programs, a t-test for equality of means was calculated. There was no statistically significant difference between equine specific and non-equine specific programs in regard to resource needs. There was no statistically significant difference in the ranking of horses as a resource between equine specific (M = 1.79, SD = 1.02) and non-equine specific (M = 1.63, SD = 0.96) programs $t(38) = 0.52$, $p > .05$, $d = 0.17$ with a small effect size. There was no statistically significant difference in the ranking of barns/stalls as a resource between equine specific (M = 3.71, SD = 1.40) and non-equine specific (M = 3.75, SD = 1.48) programs $t(38) = 0.09$, $p > .05$, $d = 0.03$ with a small effect size. There was no statistically significant difference in the ranking of arenas as a resource between equine specific (M = 4.17, SD = 1.69) and non-equine specific (M = 4.69, SD = 1.70) programs $t(38) = 0.95$, $p > .05$, d = 0.31 with a medium effect size. There was no statistically significant difference in the ranking of classrooms/laboratory space between equine specific (M = 4.33, SD = 1.71) and non-equine

specific (M = 3.50, SD = 1.97) programs $t(38) = 1.42$, $p > .05$, $d = 0.46$ with a medium effect size. There was no statistically significant difference in the ranking of technology between equine specific (M = 5.25, SD = 1.51) and non-equine specific (M = 5.56, SD = 1.41) programs $t(38) = 0.66$, $p > .05$, $d = 0.21$ with a medium effect size. There was no statistically significant difference in the ranking of textbooks/materials between equine specific (M = 5.71, SD = 1.49) and non-equine specific (M = 5.31, SD = 1.92) programs $t(38) = 0.73$, $p > .05$, $d = 0.24$ with a medium effect size. There was no statistically significant difference in the ranking of industry specific professionals between equine specific (M = 3.04, SD = 2.24) and non-equine specific (M = 3.56, SD = 1.67) programs $t(38) = 0.79$, $p > .05$, $d = 0.26$ with a medium effect size (Table 22).

Table 22

Comparison of Needed Curricular Resources between Equine Specific and Non-Equine Specific Programs

Resource	Program type	*M*	*SD*	*d*
Horses	Equine	1.79	1.02	0.17
	Non-Equine	1.63	0.96	
Barns/stalls	Equine	3.71	1.40	0.03
	Non-Equine	3.75	1.48	
Arenas	Equine	4.17	1.69	0.31
	Non-Equine	4.69	1.70	
Classrooms/laboratory space	Equine	4.33	1.71	0.46
	Non-Equine	3.50	1.97	
Technology	Equine	5.25	1.51	0.21
	Non-Equine	5.56	1.41	
Textbooks/materials	Equine	5.71	1.49	0.24
	Non-Equine	5.31	1.92	
Industry specific professionals	Equine	3.04	2.24	0.26
	Non-Equine	3.56	1.67	

Faculty

The program professionals were asked to report the total number of faculty involved in their program regardless of the program type. The average equine program has between one to 20 faculty members ($M = 2.20$, $SD = 1.71$). The responses were that 21 (52.5%) reported one to five faculty in their program, nine (22.5%) reported six to 10 faculty in their program, one (2.5%) reported 11-15 faculty in their program, three (7.5%) reported 16-20 faculty in their program, two (5.0%) reported 21-25 faculty in their program, and four (10.0%) reported a total of 25 or more faculty in their program (Table 23).

Table 23

Reported Total Number of Faculty in the Program Regardless of Program Type

Number of faculty	*f*	%
1-5	21	52.5
6-10	9	22.5
11-15	1	2.5
16-20	3	7.5
21-25	2	5.0
25+	4	10.0

The program professionals were asked to report the percentage of the faculty in their program that were equine specific versus general animal science, agricultural sciences, or another discipline. The type of program, whether equine specific or not, dictated the responses. Three (7.5%) reported 0-10% of their faculty were equine specific, five (12.5%) reported 11-20% of their faculty were equine specific, two (5.0%) reported 21-30% of their faculty were equine specific, two (5.0%) reported 31-40% of their faculty were equine specific, two (5.0%) reported 41-50% of their faculty were equine specific, two (5.0%) reported 61-70% of their faculty were equine specific, two (5.0%) reported 71-80% of their faculty were equine specific,

two (5.0%) reported 81-90% of their faculty were equine specific, and 20 (50.0%) reported their faculty were all equine specific (Table 24).

Table 24

Percentage of Faculty That are Equine Specific

Equine specific	*f*	*%*
0-10%	3	7.5
11-20%	5	12.5
21-30%	2	5.0
31-40%	2	5.0
41-50%	2	5.0
51-60%	0	0
61-70%	2	5.0
71-80%	2	5.0
81-90%	2	5.0
91-100%	20	50.0

Twenty-two (55.0%) reported 0-10% of their faculty were animal science, agricultural sciences, or another discipline, three (7.5%) reported 11-20% of their faculty were animal science, agricultural sciences, or another discipline, one (2.5%) reported 21-30% of their faculty were animal science, agricultural sciences, or another discipline, one (2.5%) reported 31-40% of their faculty were animal science, agricultural sciences, or another discipline, two (5.0%) reported 41-50% of their faculty were animal science, agricultural sciences, or another discipline, one (2.5%) reported 51-60% of their faculty were animal science, agricultural sciences, or another discipline, two (5.0%) reported 61-70% of their faculty were animal science, agricultural sciences, or another discipline, three (7.5%) reported 71-80% of their faculty were animal science, agricultural sciences, or another discipline, four (10.0%) reported 81-90% of their faculty were animal science, agricultural sciences, or another discipline, and one (2.5%) reported

91-100% of their faculty were animal sciences, agricultural sciences, or another discipline (Table 25).

Table 25

Percentage of Faculty That are Animal Science, Agricultural Sciences or Another Discipline

Animal science, agricultural science or another discipline	*f*	*%*
0-10%	22	55.0
11-20%	3	7.5
21-30%	1	2.5
31-40%	1	2.5
41-50%	2	5.0
51-60%	1	2.5
61-70%	2	5.0
71-80%	3	7.5
81-90%	4	10.0
91-100%	1	2.5

The program professionals were asked to report on the rank of the equine faculty in their program. The average equine program employs 81-100% of their faculty full time (M = 80.30, SD = 30.21). Two (5.0%) reported 0-10% of their faculty were full-time, one (2.5%) reported 11-20% of their faculty were full-time, two (5.0%) reported 31-40% of their faculty were full-time, one (2.5%) reported 41-50% of their faculty were full-time, two (5.0%) reported 51-60% of their faculty were full-time, one (2.5%) reported 61-70% of their faculty were full-time, two (5.0%) reported 71-80% of their faculty were full-time, six (15.0%) reported 81-90% of their faculty were full-time, and 22 (55.0%) reported 91-100% of their faculty were full-time.

The average equine program employs 0-20% of their faculty part-time (M = 6.73, SD = 19.24). Two (5.0%) reported 0-10% of their faculty were part-time, three (7.5%) reported 11-20% of their faculty were part-time, one (2.5%) reported 31-40% of their faculty were part-time,

one (2.5%) reported 51-60% of their faculty were part-time, and one (2.5%) reported 91-100% of their faculty were part-time.

The average equine program employs 0-20% of the faculty as adjuncts (M = 12.98, SD = 25.19). Six (15.0%) reported 0-10% of their faculty were adjuncts, four (10.0%) reported 11-20% of their faculty were adjuncts, one (2.5%) reported 21-30% of their faculty were adjuncts, one (2.5%) reported 41-50% of their faculty were adjuncts, one (2.5%) reported 51-60% of their faculty were adjuncts, one (2.5%) reported 71-80% of their faculty were adjuncts, one (2.5%) reported 81-90% of their faculty were adjuncts, and one (2.5%) reported 91-100% of their faculty were adjuncts (Table 26).

Table 26

Percentage of Full Time Versus Part Time Versus Adjunct Equine Faculty

	Percentage									
Faculty status	0-10%	11-20%	21-30%	31-40%	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%
Full time	2	1	0	2	1	2	1	2	6	22
Part Time	2	3	0	1	0	1	0	0	0	1
Adjunct	6	4	1	0	1	1	0	1	1	1

The program professionals were asked to report what the approximate percentage of tenured versus non-tenured faculty was in their program regardless of program type. The average program has between 0-20% tenured faculty (M = 28.20, SD = 31.86). Eighteen (45.0%) reported 0-10% of their faculty were tenured, five (12.5%) reported 11-20% of their faculty were tenured, three (7.5%) reported 21-30% of their faculty were tenured, two (5.0%) reported 31-40% of their faculty were tenured, five (12.5%) reported 41-50% of their faculty

were tenured, one (2.5%) reported 51-60% of their faculty were tenured, two (5.0%) reported 71-80% of their faculty were tenured, one (2.5%) reported 81-90% of their faculty were tenured, and three (7.5%) reported 91-100% of their faculty were tenured (Table 27).

Table 27

Percentage of Tenured Faculty

Tenured	*f*	*%*
0-10%	18	45.0
11-20%	5	12.5
21-30%	3	7.5
31-40%	2	5.0
41-50%	5	12.5
51-60%	1	2.5
61-70%	0	0
71-80%	2	5.0
81-90%	1	2.5
91-100%	3	7.5

The average program has between 60-80% non-tenured faculty ($M = 71.80$, $SD = 31.86$). Three (7.5%) reported 0-10% of their faculty were non-tenured, one (2.5%) reported 11-20% of their faculty were non-tenured, two (5.0%) reported 21-30% of their faculty were non-tenured, one (2.5%) reported 31-40% of their faculty were non-tenured, four (10.0%) reported 41-50% of their faculty were non-tenured, two (5.0%) reported 51-60% of their faculty were non-tenured, three (7.5%) reported 61-70% of their faculty were non-tenured, six (15.0%) reported 71-80% of their faculty were non-tenured, two (5.0%) reported 81-90% of their faculty were non-tenured, and 16 (40.0%) reported 91-100% of their faculty were non-tenured (Table 28).

Table 28

Percentage of Non-Tenured Faculty

Non-tenured	*f*	*%*
0-10%	3	7.5
11-20%	1	2.5
21-30%	2	5.0
31-40%	1	2.5
41-50%	4	10.0
51-60%	2	5.0
61-70%	3	7.5
71-80%	6	15.0
81-90%	2	5.0
91-100%	16	40.0

The program professionals were asked to report the approximate number of horses that were utilized in the program at their institution. The average equine program utilized 40-60 horses in their program (M = 5.68, SD = 3.13). Two (5.0%) reported zero to 10 horses were utilized in their program, two (5.0%) reported 11-20 horses were utilized in their program, two (5.0%) reported 21-30 horses were utilized in their program, eight (20.0%) reported 31-40 horses were utilized in their program, five (12.5%) reported 41-50 horses were utilized in their program, seven (17.5%) reported 51-60 horses were utilized in their program, three (7.5%) reported 61-70 horses were utilized in their program, three (7.5%) reported 71-80 horses were utilized in their program, one (2.5%) reported 81-90 horses were utilized in their program, three (7.5%) reported 91-100 horses were utilized in their program, and four (10.0%) reported 100 or more horses were utilized in their program (Table 29).

Table 29

Number of Horses Utilized in the Program

Number of horses	*f*	*%*
0-10	2	5.0
11-20	2	5.0
21-30	2	5.0
31-40	8	20.0
41-50	5	12.5
51-60	7	17.5
61-70	3	7.5
71-80	3	7.5
81-90	1	2.5
91-100	3	7.5
100+	4	10.0

When asked to report how the horses in their program were utilized, the options given were management/handling classes, riding/training classes, production/reproduction classes, research, and other. Respondents could select any and all that applied. Thirty-seven (92.5%) reported horses were utilized for equine management and/or handling classes, 34 (85.0%) reported horses were utilized for riding and/or training classes, 22 (55.0%) reported horses were utilized for production and/or reproduction classes, 22 (55.0%) reported horses were utilized for research, and seven (17.5%) reported horses were utilized for other classes or activities. Additional activities or uses that were reported included; an additional lesson program outside of the equine curriculum, a mounted patrol unit, equestrian athletic and/or club teams, and a therapeutic riding program. One respondent reported that their program did not have horses as students are required to provide independent access to horses and as such they could be used for multiple untracked activities (Table 30).

Table 30

How Horses are Reported to be Utilized by the Schools

How horses are utilized	*f*	%
Management/handling classes	37	92.5
Riding/training classes	34	85.0
Production/reproduction classes	22	55.0
Research	22	55.0
Other	7	17.5

The program professionals were asked to select which resources they felt were important for an equine program outside of those physically used in the curriculum, such as horses, arenas, etc. Respondents were given the options of university support, funding/revenue streams, industry collaboration, alumni support, marketing/advertising, and other, and were able to choose any and all that applied. Thirty-eight (95.0%) reported a need for support from the university, 34 (85.0%) reported needing additional funding or revenue streams, 36 (90.0%) reported needing collaboration with the equine industry, 30 (75.0%) reported needing support from alumni, 29 (72.5%) reported a need for program marketing and advertising, and five (12.5%) reported other. Among the resources listed by those choosing "other" were a need for academic support, personal support, community support, scholarships, internship opportunities, support from the greater agricultural community, and the ability to network with other schools and organizations (Table 31).

Table 31

Respondents Reported Resource Needs Outside of Curriculum

Resource	*f*	%
University support	38	95.0
Funding/revenue streams	34	85.0
Industry collaboration	36	90.0
Alumni support	30	75.0
Marketing/advertising	29	72.5
Other	5	12.5

The program professionals were asked which resources they wish their students had access to, to be more successful upon graduation. They were given six choices (classes, laboratories, equipment/technology/supplies, horses, industry contacts, and other), selected from a review of literature, with the option to fill in specific answers for each option. Seventeen (42.5%) reported they would like additional classes that their school did not currently offer. Specific class options included equine business, equine reproduction and/or genetics, event management, general management and business, barn and facility management, equine therapy/rehabilitation, equine biomedicine, equine assisted human health and wellness, and computer sciences. Multiple respondents also reported a need for more sections of equine specific classes in order to reduce class sizes, meet student demand, or allow for more individualized practical experience. Finally, several respondents reported a need for additional equine specific coursework in the overall curriculum.

When asked about additional laboratory time 14 (35.0%) reported a need for additional laboratory sessions. The majority of respondents felt that they just needed additional laboratory time in general so that students could gain more hands-on experience in smaller class sizes.

Specific laboratories that were mentioned included reproduction, anatomy, equine management, riding, and laboratories that provided exposure to lesser-known areas of the equine industry.

When respondents were asked about additional equipment, tack, technology, and/or supplies 19 (47.5%) reported those as needs. The "other" needs reported varied by the program but included reproduction facilities with ultrasound and artificial insemination equipment, trucks, horse trailers, rehabilitation equipment such as Shockwave/Eurociser/treadmill/cold laser machines/etc., riding/driving tack and harnesses, grooming equipment, new technologies/equipment in riding and training, equine industry software, and research technologies and equipment. A common response among many individuals was also a need for additional land allocation and space for classrooms, laboratories, and storage.

When asked about additional horse needs 17 (42.5%) reported a need for additional horses in their programs. Specific equine needs vary by program but included additional breeding stock such as broodmares/stallions/foals/yearlings, more variety in breeds, a need for both beginner and upper-level horses for riding/training courses, more discipline specific horses for riding courses, and additional school owned, general use horses for increased access and use by students.

When respondents were asked about their needs in regard to equine industry contacts 19 (47.5%) reported a desire for more industry connections. These connections would be utilized to serve as advisory groups, provide jobs/internships/mentorships, serve in a networking capacity, and provide exposure to additional regional/national/international opportunities. Respondents also felt that many industry professionals would be willing to share their time and expertise if there were better methods in place to connect with the university/faculty/students in their respective breeds/disciplines/geographic areas.

Eight (20.0%) respondents chose "other" resources. They indicated that those resources included increased program funding, capital improvements to facilities, internship opportunities, additional knowledgeable faculty, and pre-college preparatory courses/programs so that students would be better prepared academically and socially for the university environment (Table 32).

Table 32

Resources Respondents Wish Their Students had Access to, to be More Successful Upon Graduation

Resource	*f*	%
Additional classes	17	42.5
Additional labs	14	35.0
Equipment/technology/supplies	19	47.5
Additional horses	17	42.5
Industry contacts	19	47.5
Other	8	20.0

Objective 5: Determine the educational outcomes of four-year equine degree programs according to those responsible for the construction and facilitation of the degree program.

In this section, data are reported on graduation rates and the pathways that students are taking following graduation, whether that be into graduate school or out into the industry.

Graduation Rates

The program professionals were asked to report the approximate percentage of students who successfully graduated from their program. The average program reported an overall graduation rate of between 81-90% ($M = 2.13$, $SD = 1.09$). One (2.5%) reported a 21-30% overall graduation rate, three (7.5%) reported a 41-50% overall graduation rate, three (7.5%) reported a 51-60% overall graduation rate, four (10.0%) reported a 61-70% overall graduation

rate, five (12.5%) reported a 71-80% overall graduation rate, 15 (37.5%) reported an 81-90% overall graduation rate, and nine (22.5%) reported a 91-100% overall graduation rate.

The average program reported an equine specific graduation rate of 81-90% ($M = 2.67$, $SD = 1.13$). This number may have been the same as the overall graduation rate if the program was equine specific and all of the students enrolled were equine focused. One (2.5%) reported a 21-30% graduation rate for equine students, one (2.5%) reported a 31-40% graduation rate for equine students, two (5.0%) reported a 41-50% graduation rate for equine students, three (7.5%) reported a 51-60% graduation rate for equine students, four (10.0%) reported a 61-70% graduation rate for equine students, six (15.0%) reported a 71-80% graduation rate for equine students, 13 (32.5%) reported an 81-90% graduation rate for equine students, and 10 (25.0%) reported a 91-100% graduation rate for their equine students (Table 33).

Table 33

Percentages of Overall Students' Graduation Rates Versus Equine Students' Graduation Rates

Overall student rates	*f*	%	Equine student rates	*f*	%
0-10%	0	0	0-10%	0	0
11-20%	0	0	11-20%	0	0
21-30%	1	2.5	21-30%	1	2.5
31-40%	0	0	31-40%	1	2.5
41-50%	3	7.5	41-50%	2	5.0
51-60%	3	7.5	51-60%	3	7.5
61-70%	4	10.0	61-70%	4	10.0
71-80%	5	12.5	71-80%	6	15.0
81-90%	15	37.5	81-90%	13	32.5
91-100%	9	22.5	91-100%	10	25.0

In an effort to determine if graduation rates were different between equine specific and non-equine specific programs, a t-test for equality of means was calculated. There was no statistically significant difference in overall graduation rates regardless of the program between

equine specific (M = 2.67, SD = 1.13) and non-equine specific (M = 2.13, SD = 1.09) programs $t(38) = 1.51$, $p > .05$, $d = 0.49$ with a medium effect size. There was no statistically significant difference in equine student graduation rates between equine specific (M = 3.00, SD = 1.87) and non-equine specific (M = 2.53, SD = 1.77) programs $t(38) = 0.78$, $p > .05$, $d = 0.26$ with a medium effect size (Table 34).

Table 34

Comparison of Percentages for Graduation Rates Between Equine Specific and Non-equine Specific Programs

Graduates	Program type	*M*	*SD*	*d*
Overall student rates	Equine specific	2.67	1.13	0.49
	Non-equine specific	2.13	1.09	
Equine student rates	Equine specific	3.00	1.87	0.26
	Non-equine specific	2.53	1.77	

The program professionals were asked to report on the type of education or career path their students were going into following graduation.

When asked about students going into further education in a graduate school program or to veterinary school, 22 (55.0%) reported it for 0-10% of their students, six (15.0%) reported it for 11-20% of their students, eight (20.0%) reported it for 21-30% of their students, one (2.5%) reported it for 31-40% of their students, two (5.0%) reported it for 41-50% of their students, one (2.5%) reported it for 71-80% of their students. None reported it for more than 80% of their students.

When asked about students going into a primary job in the equine industry, one that has direct contact with horses on a daily basis such as horse trainers, barn managers, veterinary technicians, etc., seven (17.5%) reported it for 0-10% of their students, five (12.5%) reported it

for 11-20% of their students, seven (17.5%) reported it for 21-30% of their students, six (15.0%) reported it for 31-40% of their students, six (15.0%) reported it for 41-50% of their students, three (7.5%) reported it for 51-60% of their students, four (10.0%) reported it for 61-70% of their students, one (2.5%) reported it for 71-80% of their students, one (2.5%) reported it for 81-90% of their students, and none reported it for more than 90% of their students.

When asked about students going into a secondary job in the equine industry, one that has limited contact with horses but still supports the equine industry such as office managers, marketers, sales reps, etc., 15 (37.5%) reported it for 0-10% of their students, 12 (30.0%) reported it for 11-20% of their students, five (12.5%) reported it for 21-30% of their students, four (10.0%) reported it for 31-40% of students, four (10.0%) reported it for 41-50% of their students, and none reported it for more than 50% of their students.

When asked about students going into a position that was not directly involved in the equine industry, but still related to animal science or agricultural science, 20 (50.0%) reported it for 0-10% of their students, five (12.5%) reported it for 11-20% of their students, eight (20.0%) reported it for 21-30% of their students, one (2.5%) reported it for 31-40% of their students, two (5.0%) reported it for 61-70% of their students, one (2.5%) reported it for 71-80% of their students, and none reported it for more than 80% of their students.

When asked about students going into a position that was not involved in the equine industry, nor the animal science or agricultural science industries 30 (75.0%) reported it for 0-10% of their students, seven (17.5%) reported it for 11-20% of their students, three (7.5%) reported it for 21-30% of their students, and none reported it for more than 30% of their students (Table 35).

Table 35

Percentages of Career Paths Taken Upon Graduation

Path	Percentage									
	0-10%	11-20%	21-30%	31-40%	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%
Graduate/vet school	22	6	8	1	2	0	0	1	0	0
Primary equine	7	5	7	6	6	3	4	1	1	0
Secondary equine	15	12	5	4	4	0	0	0	0	0
Non-equine, Ag or Animal Science	23	5	8	1	0	0	2	1	0	0
Non-equine /Non-Ag/ Non-Animal Science	30	7	3	0	0	0	0	0	0	0

In an effort to determine if students from equine specific programs were headed into the same or different career paths from those in non-equine specific programs, a t-test for equality of means was calculated.

There was a statistically significant difference for those going on to a primary equine industry position between equine specific (M = 45.29, SD = 20.69) and non-equine specific (M = 22.25, SD = 18.49) programs $t(38) = 3.60$, $p < .001$, $d = 1.61$ with a large effect size, with more graduates from equine specific programs going on to primary equine industry positions upon graduation. There was a statistically significant difference for those going into non-equine industry but still agricultural or animal science industry positions between equine specific (M = 7.54, SD = 7.51) and non-equine specific (M = 30.75, SD = 21.37) programs $t(38) = 4.91$, $p < .001$, $d = 1.59$ with a large effect size, with more students from a non-equine specific program

going into a position that was not involved in the equine industry, but still involved in the agricultural or animal sciences industries.

There was no statistically significant difference for those going on to graduate or veterinary school between equine specific (M = 16.38, SD = 15.24) and non-equine (M = 20.44, SD = 14.75) programs $t(38) = 0.84$, $p > .05$, $d = 0.27$ with a medium effect size. There was no statistically significant difference for those going on to a secondary equine industry position between equine specific (M = 23.29, SD = 15.77) and non-equine specific (M = 16.19, SD = 9.66) programs $t(38) = 1.61$, $p > .05$, $d = 0.52$ with a large effect size. There was no statistically significant difference for those going into non-equine, non-agricultural, non-animal science industry positions between equine specific (M = 7.50, SD = 7.11) and non-equine specific (M = 10.38, SD = 10.01) programs $t(38) = 1.06$, $p > .05$, $d = 0.34$ with a medium effect size (Table 36).

Table 36

Comparison of Percentages of Post Graduation Student Paths Between Equine and Non-Equine Specific Programs

Pathway	Program type	*M*	*SD*	*d*
Graduate/veterinary school	Equine	16.38	15.24	0.27
	Non-Equine	20.44	14.75	
Primary equine industry	Equine	45.29	20.69	1.61
	Non-Equine	22.25	18.49	
Secondary equine industry	Equine	23.29	15.77	0.52
	Non-Equine	16.19	9.66	
Non-equine, still ag/ animal science	Equine	7.54	7.51	1.59
	Non-Equine	30.75	21.37	
Non-equine, non-ag, non-animal science	Equine	7.50	7.11	0.34
	Non-Equine	10.38	10.01	

The final chapter will summarize the results, discuss how they relate to the objectives of the study and make recommendations for further research in this area.

Chapter 5

Discussion, Recommendations, and Conclusion

The general purpose of this study was to evaluate the programmatic and curricular components of four-year equine degree programs being offered at post-secondary institutions throughout the United States. This chapter will summarize the results of the study and discuss their implications as they relate to each of the research objectives. Following that, I will make my recommendations on further studies that could be conducted which would add to the existing data and continue to contribute to the overall knowledge base regarding contemporary post-secondary equine education programs.

Discussion

Objective 1: Determine what types of four-year equine degree programs currently exist in the United States.

In an effort to first determine what type of equine programming is available in the United States, an extensive online search was conducted. Studies by Parmenter (1978) and Rudolph (1979) identified 102 and 119 programs respectively. However, the Parmenter study utilized both four-year and two-year programs and the Rudolph study identified programs that had a major, minor, or both. This study was focused on post-secondary institutions that offered four-year degree program options only. Institutions had to have offered a major in an equine species-specific area or offered a major with an equine focus, specialization, track, etc. or an equine certificate that required a minimum of 15 equine specific hours. Two-year programs or those with only minors were not included.

A total of 77 institutions were identified in this study with 36 programs being equine species-specific and 41 offering equine programs as part of an animal science, agricultural

sciences, business, biomedical science, biology, sport recreation and wellness management, or interdisciplinary studies major. Of the institutions identified, 42 were also identified in the Parmenter (1978) study and 39 were also identified in the Rudolph (1979) study. Though the classification of the school or program may have changed over the last approximately 45 years, it is encouraging to see that more than 50% of the programs that were currently identified were also in existence then. This speaks to the success and sustainability of those programs and the continued need for equine educational degrees.

Of the 77 institutions that were identified, 28 were land grant institutions, 26 were public colleges or universities and 23 were private colleges or universities. All of the private schools except two had equine species-specific programs. The public and land grant schools, while having some equine species-specific programs, were more likely to house equine programs other under majors such as animal science or agricultural sciences degree programs. A total of 40 institutions participated in the study, in which 24 were equine species-specific and 16 were not equine species-specific. This led to the conclusion that equine species-specific programs were more interested in the current state of programming as this would affect their programs more directly than those that were part of a broader degree program.

Once the type of institution and program was identified, the study aimed to define some characteristics of the student body. It was found that the large public and land grant schools reported larger overall student populations in their programs. However, the private schools reported higher percentages of equine specific students, not surprising given that the private schools also had a higher percentage of equine specific degree programs.

When asked to report on the level of equine experience that was required of students entering the program, all programs reported equally with the vast majority reporting that no

equine experience was necessary and none of the programs required more than a basic skill set for admittance. All types of programs reported that some exposure to horses or a basic skill set when entering the program would be ideal in terms of success, with a smaller percentage believing that no experience or an intermediate skill set would be best, and no programs reported that an advanced skill set would be most ideal. While one could conclude that more prior experience would lead to higher levels of success, this was not shown in the results. Possible reasons could include the fact that fewer students now come from agricultural backgrounds and that programs are increasingly geared toward the beginner level. Or that those with more prior experience may have been taught unsafe or inappropriate methods, with schools preferring to impart their own knowledge and practices among the student body.

The final part of this objective was to look at the characteristic information of those who participated in the study. In an effort to reach those who would be most knowledgeable about the program, department heads or senior faculty were identified and approached for each program. Most of those who responded were the initial contacts, however, several programs did reach out to offer contact information for others in the program that were thought to be more appropriate.

From the information reported, the average respondent was between the ages of 41-60 years of age. This made sense given that all respondents reported having earned at least a bachelor's degree with more than half reported having earned a terminal degree. The number of years that is required to complete these educational levels, along with the majority of respondents reporting to have spent between six to 15 years involved in the industry prior to joining academia, would lead to an older faculty population.

The respondents were more than twice as likely to be female than male. With overall student populations in animal science or agricultural science programs shifting to be more female

than male (Food and Agricultural Education Information System, 2010), it would also make sense that the faculty would see a shift from predominantly male to female.

Finally, 39 of the 40 respondents reported being of Caucasian or White background, with one respondent preferring not to report. This aligns with the current data showing that 95.4% of those directly involved in agriculture in the United States report as Caucasian or White according to the 2022 Census of Agriculture conducted by the United States Department of Agriculture (2024).

Objective 2: Determine what the objectives of a successful four-year equine degree program should be according to those responsible for their construction and facilitation.

The objectives of a four-year equine degree program are as varied as the programs themselves. Some focus more on practical skills, some focus more on theoretical knowledge, but all need to produce graduates who are ready to enter the industry. Respondents were asked to report in their own words what they thought should be the objectives of a successful program. There were several common themes which emerged from those statements, which were supported by multiple people.

First, students need to be equipped with foundational knowledge in equine health, care and handling. If students are going to be working in primary equine positions, they need to know the basics on topics such as anatomy, nutrition, management, and behavior as well as how to keep both themselves and the horses safe when working together. Students need to be equipped with the experiential skills necessary to walk into a number of positions, without just relying on what has been taught in a lecture or read from a book.

Second, students need to be aware of what is happening in the multiple facets of the equine industry including current hot topics or issues. While there are many facets of the equine

industry that have changed very little over the last 100 years, there are other areas that seem to be evolving almost daily. Students need to have a grasp on what issues are facing the equine industry, both beneficial and critical. With today's increase in social media usage, they also need to learn how to identify moral or ethical issues, how to approach them, and how to remain proponents of the use of horses for work, education, and recreation.

Third, programs should equip students with the personal and professional skills needed to join the industry, outside of those that are strictly equine based. There are many positions within the equine industry that focus more on the business side now than there were in years past. Students now need to learn skills in management, accounting, economics, marketing, etc. that can help an equine business to be successful whether it be their own or someone else's. In addition, schools must increasingly help to impart the "soft skills" that many students are lacking when they enter post-secondary programs. Skills such as teamwork, critical thinking, time management, and work ethic are invaluable to future employers who have stated that current generations are joining the workforce without (Hoffman & Arnold, 2018).

Finally, students need to leave school with a mindset for continued learning and education. Many students graduate "not knowing how much they don't know." A four-year program can only impart so much, and it is the graduate's responsibility to strive for more. In order to do so, instructors should encourage scholarship across many disciplines both while enrolled and upon graduation.

Overall, four-year equine programs should strive to prepare their students to be competitive and knowledgeable upon entering the equine industry, but self-aware enough to know that knowledge is a life-long pursuit.

Objective 3: Determine which curricula and experiences are considered to be the most important for equine students to be properly prepared to enter graduate school or employment in the equine industry upon graduation according to those responsible for the construction and facilitation of the degree program.

For this study, the respondents were asked to rate a number of different types of courses based upon their level of importance for future graduates. To determine which types of courses were utilized, the curricula of all 77 schools identified was analyzed and courses were grouped based on overall subject matter as opposed to specific titles or listed activities. The 20 courses given for review were chosen as they were present in at least 50% of the curricula for the equine programs represented, which tells us that they are already considered to be valuable for future graduates.

The majority of the coursework was rated of equal importance by both equine species-specific programs and non-equine species-specific programs. The top five rated courses for all program types were equine care and management, communications, equine health and diseases, equine specific anatomy and physiology, and equine specific nutrition. This aligns with the data that was collected for what the objectives of a four-year equine program should be as determined in Objective 2. These classes would support foundational equine knowledge as well as the soft skills for personal and professional development.

The lowest rated courses by both types of programs were riding with a rider/equitation focus, teaching and instruction, riding with a horse/training focus, general reproduction, and genetics. This also aligns with the results of Objective 2, whereby these courses would represent highly specialized skills and knowledge that may not be at the top of the list for future

employers. These are also skills that require a lot of hands-on time and are associated with higher program costs.

Courses that fell into the middle of the spectrum were behavior, current issues, careers and industry, general nutrition, equine specific reproduction, economics and accounting, facility design and management, sales and marketing, evaluation selection and judging, and general anatomy and physiology.

Many of the courses came out to be rated approximately the same by all program types, with no statistically significant difference in their ratings. Courses that were rated significantly higher by the equine species-specific programs were careers and industry and teaching and instruction. Teaching and instruction made sense given that a large segment of the equine industry is involved with teaching others how to ride or care for their animals. I believe that careers and industry were higher for this population as the equine industry is so vast and varied that many students lack awareness of the many types of positions that exist and exposure during their time in a post-secondary program may help them to specialize their course of learning to follow their individual interests or passions.

Courses that were rated significantly more important by the non-equine species-specific programs were equine behavior, equine specific reproduction, general reproduction, and genetics. Equine behavior was surprising to me, but perhaps the equine programs incorporate this into other courses of study as most of their curricula will already be equine specific. I believe the reproduction and genetics courses fit under non-equine species-specific programs as more of those programs tend to be science based and these courses would be heavier on theoretical knowledge than practical skills. Also, the role of genes, chromosomes, hormones, etc. would remain fairly constant across many different species.

With the evidence that many post-secondary programs now allow for specialized tracks in their programming, whether equine species-specific or non-equine species-specific, respondents were asked for their opinion on this practice. More than half of those that responded strongly agreed or somewhat agreed with including specialized tracks in equine curricula. Those same respondents also stated that specialized tracks should only be offered once core knowledge has been gained. Again, we see alignment from Objective 2 that foundational horse knowledge should be at the forefront of equine education. Students can then move on to more specialized or niche areas depending upon their individual interests and what is offered at the post-secondary institution of their choosing. Many of the equine specific schools offer multiple major options under the equine heading such as equine science, equine management, or equine business, however, the core curricula for each of the degrees remains consistent, especially for the first one to two years of study.

Many equine degree programs, regardless of type, have a significant amount of laboratory or hands-on time built into their curricula. However, it was noticed that some schools, especially those with smaller herd sizes, had less laboratory time. When asked to report on which amount of lecture versus lab or theoretical versus practical time was ideal, the majority chose a model that was approximately 50% - 50% for each. Programs with more specialized activities such as riding, instruction, or breeding would need to have more laboratory time built in as these activities must be completed with horses. Programs that were more business based had less laboratory time built in as their objectives could more easily be met in the classroom. For this reason, it is important for future students to really evaluate what type of program they are entering and how much hands-on time they feel would be best suited to meet their goals.

Finally, the types of extracurricular activities that students could or should participate in, to be most successful upon graduation, were evaluated. Respondents overwhelmingly believed that students needed to have actual industry experience prior to graduating and entering the workforce full time. Every respondent thought that an industry internship, whether paid or unpaid, would be the most important, followed closely by some type of industry employment. Many students do not enter equine programs with a full understanding of what is actually required in a day-to-day position in the equine industry. This is still predominantly an area where the 9-5 schedule is not the norm and jobs are both mentally and physically demanding. Internships are often preferred as they encourage both students and employers to meet certain requirements and experience many different facets of the job. Employment overall is important and aids students in gaining experience, but as unskilled workers, they can often be relegated to menial tasks or physical labor positions which have less of a beneficial impact on their studies moving forward. The next activity believed to be most important for students was involvement in clubs or student activities. This is especially important to aid students in developing the soft skills that can be harder to obtain in the classroom environment. Once students reach the post-secondary level, faculty work more in advisory roles and allow students to "take the reins" as it were in leading and developing their own goals and activities. Clubs and specialized activities also allow students to either follow their passion completely, or experiment and explore interests that may be new to them while still in a safe and controlled environment.

To a lesser extent, respondents reported that students should engage in showing or clinics. The programs that favored these activities were unsurprisingly the ones that had more of an emphasis on riding, training and instructing. By allowing students to participate in these arenas, while still giving guidance and supervision, they can explore a segment of the industry that is

impossible to reproduce in a scholastic environment. This also gives students the opportunity to begin networking with future employers or clients. Students who are not planning to pursue this type of career path would be better off spending their time on other activities.

Overall, stakeholders will need to decide what they feel is the most important thing to achieve while providing or obtaining a degree in equine education. The type of program should incorporate the knowledge, courses, and activities that will best help a student to graduate and enter the workforce. If programs could identify core competencies and skills, and then adopt those nationwide, it would allow for some degree of standardization across degrees. Employment is now just as specialized as education and each student or program will need to regularly evaluate how best to meet these needs.

Objective 4: Determine which resources are considered to be the most important in a successful and sustainable four-year equine degree program according to those responsible for their construction and facilitation.

Equine degree programs require substantially more resources than many of their academic counterparts, which is probably one of the top reasons that so few of them exist today. When preparing for this study, it was discovered that many of the schools which previously housed programs have either closed or downgraded their available offerings over the past decade. There are also schools which have already publicly announced future closure or restructuring following the graduation of their current classes of graduates. With this in mind, it is important to evaluate which resources education industry professionals consider to be the most important or relevant to keep a successful program running.

On an introductory level, the schools were evaluated for recruitment techniques, after all, you can't have a program without students. The most popular means for recruitment were

university-based programs, word of mouth, or alumni backed efforts. This was followed by recruitment from youth organizations, horse shows and clinics, and online campaigns. Finally, some schools reported utilizing scholarships, recruitment to equestrian teams, and recruitment through showcasing of their equine facilities. Overall, recruitment needs to be an active and ongoing process for equine education programs. Remaining static and hoping that students find you is not going to increase enrollment. Schools need to develop and maintain relationships with their program alumni and be a constant presence both in the equine industry at large and through online and social media platforms.

Next, respondents were asked to rank how important seven different types of curricular resources were for a program to be successful overall. In order from most to least important were horses, industry specific teaching professionals, barns and stalls, classrooms and laboratory space, riding arenas, current technology, and finally textbooks and materials. I would have believed that equine species-specific programs and non-equine species-specific programs would have rated the above resources differently, purely based off of the different program types. However, the statistics showed that there were no statistically significant differences between the programs, in fact most of the responses were very close in their rankings overall. From this it was determined that equine programs primarily need horses, places to house and utilize them and qualified personnel to teach students about them.

Knowing that horses are the most needed resource within an equine education curriculum, this study analyzed how many horses each type of program was utilizing to meet their needs. The average school said that they owned or housed between 40-60 horses annually. Only 10% of the programs reported having more than 100 horses available to students and those were programs with equine specific degree options. When asked to report on how the horses

were being utilized by their specific programs, the large majority of respondents said that horses were primarily utilized for management and handling classes or riding and training classes. This was followed by production and reproduction classes and research endeavors. School owned horses may also have been used for equestrian teams and clubs, therapeutic riding programs, community-based riding programs, and even a local mounted patrol unit.

Most post-secondary institutions do believe that school owned horses are best, however, some schools require students to supply their own animals for lessons or lease horses that can be used as needed and returned when not in use. The benefit of having school owned horses is advanced knowledge about their history and abilities, which leads to increased structure and safety measures. But this comes with the additional expenses of housing and health maintenance as well as the difficulties that can come with trying to acquire horses with the right temperament and attributes, whether purchased or donated. Some schools will lease horses or have a care in exchange for training type of program. This is especially helpful for programs that offer colt breaking and starting as this is generally only done once in a horse's lifetime. Owners get the benefit of free care, and the first 90 days put on their horse, while students get real-life experience under the guidance of professionals. The added bonus is that at the end of the semester, the horses return home and do not need to be cared for during school breaks when there are fewer students around to aid staff in daily husbandry activities. There are also those schools that rely partially or exclusively on the students themselves to provide their own animals for lessons. This removes most of the cost and liability associated with owning horses but will then preclude students who do not have the means to produce their own horses. Even students with horses may not have horses with the right attributes for the program or may be hindered by

the costs associated with housing them on or near campus. As a student it is imperative that all of this is taken into consideration before choosing a program.

Almost half of those who responded also reported the need for additional school-owned horses in their programs. Specific needs varied by program type. Many schools with riding classes felt that they needed additional beginner level horses for the students now coming in with little to no horse experience, as reported on in Objective 1. On the flip side, well established riding programs needed additional upper-level horses for their more accomplished students to learn and show on, as these are often harder to come by and often have physical limitations by the time they reach school horse status. Programs that have or are trying to build reproduction programs needed quality broodmares and stallions to improve their genetic offerings without suffering the consequences of line breeding. This is difficult as many owners who are producing animals capable of bringing in high profits will not be willing to give them up to a school program. One option that many schools are utilizing is standing stallions to the public at the school while also being allowed several breedings a year to school owned horses. Similar set ups can be had with mares where embryo transfers may given to the school in exchange for free or low-cost breeding work. Ultimately, many programs just reported needing additional horses so that students could acquire additional practical experience with smaller student to horse ratios.

Industry specific teaching professionals was ranked as the second most important resource, so this study looked further into the faculty that was available in each program. More than half of the respondents reported that their programs only had between one to five total faculty members. The next highest numbers were six to 10 and 25 plus, with a minimal number of schools reporting anywhere from 11-25 total faculty members. The schools with the greatest numbers were the large land grant institutions. When these numbers were further explored, it

showed that approximately half of respondents reported that 91-100% of their faculty were equine species specific. This would align with the number of equine species-specific programs, as there would be no need for faculty specializing in other species in an equine only program. Those programs with non-equine species-specific programs had varying numbers of faculty who taught equine only courses. This also aligns with schools which had animal science or agricultural sciences programs as courses like general nutrition or general reproduction would not be species specific and may or may not be taught by equine industry professionals.

When reporting about the teaching load of equine specific faculty, the majority of respondents reported that their equine faculty were full-time. Few schools reported that equine faculty filled part-time or adjunct professor positions. This would make sense in the smaller programs, where there are generally fewer faculty, and they teach multiple subjects or teach both the theoretical and practical components. In many equine species-specific schools those who teach riding and training classes will also teach classes such as care and management or marketing and selling depending on what their industry specializations are. Faculty members in larger non-equine species-specific programs may jump between subjects or split their time with research or extension programs.

When evaluating what percentage of the faculty held tenure status versus non-tenure status, the results were about 50-50%. There were a few responses that fell into the other percentages from 11-90% but these were minimal. This also aligns with the data that we have about program type and the characteristics of those who participated in the survey. Larger land grant institutions and public schools are more likely to have faculty with terminal degrees and offer tenure. Smaller private institutions are more likely to have faculty with lesser degrees and are less likely to offer tenure positions. As the smaller institutions are also more likely to have

equine species-specific programming, they are more likely to have recruited faculty who had been active in the equine industry and built reputations there prior to joining academia, and as such are less concerned with advancing in the university systems.

Next, respondents were asked to report on which resources outside of the curriculum, or not directly involved in the teaching process, were the most important in maintaining a successful equine education program. The numbers reported here were so high in fact that there was no need to differentiate between program types. The resources needed when listed from most important to least important were support from the university, collaboration with the equine industry, funding and revenue streams, alumni support, and program specific marketing and advertising.

Support from the university is especially important in smaller, niche programs such as equine education. As many of these programs are housed outside of the immediate school grounds, they can often be made to feel as though they are less important or are a stand-alone program (Britt et al., 2008). Having university support encourages the faculty to take more leadership roles and advocate change. It allows students to feel as though they are part of the community and have the support they need to be proud of their degree. Knowing the university supports the program also allows it to make changes and try to stay current with industry needs, without fear of repercussion or removal of needed resources.

Industry collaboration is important for any program, but especially equine programs. Although broad by many definitions, the horse world is still small enough that who you know is just as important as what you know. Being able to network with those in the industry will open up opportunities for both the educational program in terms of faculty and resources, but also for future graduates entering the job market or seeking out internship experiences. Engaging

program alumni is an easy but often overlooked means to connect with the industry. If a graduate has excelled in their career, they will probably credit their education to at least some degree (Britt et al., 2008). Staying in contact with alumni and also showcasing their success shows students that it can be done and also gives them an additional tool when entering the equine industry.

Funding and revenue streams have and always will be a priority for post-secondary equine programs. Equine programs are expensive to set-up and operate. Very few of them have off time. Even during breaks, when more traditional programs can simply shut the doors and turn off the lights, horses still need to be fed and cared for. Having year-round staff is a constant struggle. Changes in the weather impact changes in the food supply, and a draught can be catastrophic to a feed budget. Horse populations regularly turn over and the tack and supplies needed have to be replaced on a regular schedule. This does not even take into account the specialized equipment and laboratories that some programs require. While many programs have found ways to subsidize their budgets, others may operate in a near or total deficit and have to be creative with funding sources. Being able to establish reliable and predictable revenue streams will ensure the sustainability of a program.

One way to increase funding is to increase the advertising and marketability of the program. By increasing or at least maintaining student populations, enrollment shows the school that the program is worthwhile. Marketing will also show the community and population at large the positive efforts that they are making toward equine education and welfare. Livestock programs are often strong proponents of proper land use and speak to the environmental and conservation communities. If a program has offerings for the public, whether regular or for special occasions, it helps to get the community involved and invested in not only the program

but the students. Many donors will consider monetary contributions to a program if they feel that their money is going to a worthwhile cause that will use it appropriately, as opposed to just a faceless university or corporation.

Finally, respondents were asked to report on what they wished their students had available to be more successful upon graduation. The wish list was not complicated, and most schools reported similar things. The predominant request was simply ways in which to help students get more hands-on time with horses. Having smaller class sizes with a better student to teacher to horse ratio was at the top of the list. Most programs realize the limitations that come from trying to get as much as possible squeezed into four short years but are regularly looking for ways to improve. Some programs sought out additional courses or labs that their programs were unable to provide, some programs needed additional instructors or faculty that were knowledgeable in specific content areas. All of the programs needed more "things". Whether this be tack, lab equipment, software, or the ever in short supply, land and facilities. I believe that many programs would expand their holdings if it was economically feasible to do so and that there would be interest if done correctly. However, expansion has to be done judicially and with the support of all of the other areas mentioned previously.

Objective 5: Determine the educational outcomes of four-year equine degree programs according to those responsible for the construction and facilitation of the degree program.

Graduation and ultimately entering the equine industry are the main goals of the students enrolled in four-year equine degree programs. This study evaluated whether the type of degree program had an impact on the graduation rates and intended career paths of those enrolled.

It was determined that overall graduation rates are approximately equal for students enrolled in equine species-specific programs compared to those enrolled in a non-equine species-

specific program. The graduation rates among equine focused students also remained approximately the same for both types of programs. The majority of schools reported that they had graduation rates between 80-100% for their students, with only about one third of schools reporting graduation rates lower than 80%. This was higher than the national average for college graduation which sat at 62.2% in 2023 for four-year degree programs (National Student Clearinghouse Research Center, 2023).

Where students were planning to go following graduation did show some statistically significant differences between the types of programs offered, whether that be equine species-specific or non-equine species-specific.

For students choosing to go on to further education whether that be graduate school or veterinary school, both programs showed approximately the same percentage of students. This was surprising, as I believed that non-equine specific programs would have shown higher numbers here. One reason being that many of the smaller private schools, which predominantly house equine specific programs, do not have graduate degree offerings. Another being that students choosing veterinary school generally look for a broader range of animal experience as they will be studying all species in veterinary school. Perhaps the equine specific students are planning to specialize in equine medicine for their future career goals and are not as interested in spending their time learning about food and fiber animals.

Second, comes students choosing to go into primary positions within the equine industry, those roles that have direct daily contact with horses. Unsurprisingly, we did see a statistically significant increase in graduates from equine species-specific programs choosing these paths. Generally, students seeking out these roles have a very specific career path in mind and try to choose schools based on that path. There are equine specific programs that focus more on

segments of the industry such as riding and training or reproduction that are big draws for students. Many of the broader animal science or agriculture programs include all species and those students only interested in equine are less likely to choose them.

Third, there was no statistically significant difference between equine species-specific and non-equine species-specific programs for students choosing secondary positions within the equine industry. Those are the roles that while still involved in the equine industry would not handle horses daily. Those roles tend to be more business or management based. Students choosing those paths need more of a focus on the business type classes and less on the equine handling side and as such would be pretty equally suited for multiple types of degree programs.

Fourth, come students choosing career paths that were not equine related but still involved in the animal science or agricultural sciences fields. Not surprisingly, we saw a statistically significant increase in the number of students from non-equine species-specific programs headed into those roles. Afterall, equine students generally choose equine programs. Perhaps some of the students who had equine leanings while in these programs did so out of personal passion rather than a strong desire to join the equine industry.

Fifth, and finally, we saw approximately the same number of students who chose to leave the equine industry, animal science industry, and agricultural sciences industry across all program types. This was a very small percentage of the overall student populations and without knowing where these students went, one could only speculate as to their reasons. Perhaps they became disenchanted with their programs, were offered jobs in other industries, or chose not to enter the workforce at all.

Ultimately, most of the results for graduates are what was expected. Students who want to be in the equine industry generally know where they want to go and how best to get there.

Students who enjoy horses but do not want to have equine based careers know how to stay connected while still pursuing other paths, and those who are going to leave the field all together will do so regardless of their degree.

Recommendations for Future Studies

Equine education as a whole is underrepresented in the current research literature. Much of the research that does exist is from 20-50 years ago, when equine programming at the post-secondary level was at its most popular. However, as this study has shown, the equine industry is continuing to grow and the demand for skilled workers in this field continues to grow as well. In an effort to support the field of equine education at the post-secondary level, additional research into the types of programming that are most beneficial to those entering the industry is crucial not only for the students themselves, but also for the institutions that house them. Equine programs are expensive to maintain and determining what is most relevant for graduates will help them to remain sustainable in the future. I would recommend the following topics for continued research.

First, I believe that it would be beneficial for a study similar to this to be repeated every 3-5 years. Determining what types of programs are still running and what types of coursework are taking priority at their institutions would allow students to be better educated and institutions to mimic what other successful programs are doing. As the equine industry evolves, so to must the education for it.

Second, I think it would be helpful to look at the differences between four-year and two-year equine programs. There have been studies showcasing the needs and expectations of two-year programs, with curricula that lends itself more toward practical skills than theoretical knowledge. Knowing if these students were leaving two-year programs to join the equine

industry directly or advancing on to four-year programs would help to differentiate the types of curricula each option offers and why.

Third, I think the curricula could be examined more closely as there are many gaps in the existing literature here. Due to the limitations of this study, I grouped curricular choices by course type rather than by specific content. I believe it would be helpful to look at the specific skills that prove most beneficial for future graduates. In order to do so, I believe it would be valuable to poll multiple entities about the specific skills that they feel are the most important. First, asking students currently enrolled in equine programs what they see as most important. Second, asking recent graduates who had been out in the industry for approximately three to five years about which skills were the most important to them starting out, and third asking faculty about which skills they see as most important. In this study I only polled one department head or senior equine faculty member for each program. Being able to poll multiple members of the faculty would allow for insight from those with different types and amounts of prior experience in both the equine industry and academia.

Fourth, I believe it would be invaluable to gain insight from those in the equine industry themselves about what skills and experiences they look for in new graduates. I realize this is the most untouched group simply because it is so difficult to navigate the vastness of the industry. Perhaps it would be beneficial to do this by breed, discipline, specific job type or geographic area. I do think that individuals would be willing to help if approached, but there would need to be multiple studies conducted to account for varying viewpoints based upon the different segments of the industry.

Conclusion

There is little existing comprehensive information about four-year equine education programs in the United States. This study was able to identify the programs that are currently operational and their locations nationwide. Once these institutions were identified, qualified faculty from each institution were contacted to report not only on the characteristics of their home college or university, but also for their opinions on what the goals of equine education programs should be, and what the best ways to reach them were. Multiple types of programs, including equine species-specific and non-equine species-specific were polled and the results were surprisingly similar across the board.

Overall, it was determined that four-year equine degree programs should focus on turning out students with foundational equine knowledge and handling skills, an awareness of the current state of the equine industry, personal and professional development skills, and a passion for lifelong learning. Schools can do this by focusing on courses such as equine care and management, equine health and diseases, communications, equine anatomy and physiology, and equine nutrition.

The greatest needs faced by schools were having enough quality school horses and qualified faculty that could provide the needed hands-on time for students. These needs would be met when the programs had support from their college or university, necessary funding, and support from the greater equine industry.

Graduation rates for all types of programs were generally above 80%. The percentage of students were approximately the same for those choosing career paths in graduate or veterinary school, secondary equine industry positions or leaving the equine, animal science, or agricultural science fields. Those students who went on to primary equine industry positions primarily chose equine specific programs. Students who went on to non-equine positions in the animal science

or agricultural science fields primarily chose non-equine specific programs. This leads to the conclusion that students with a specific career path in mind will generally choose the program that they think will best help them get there.

With this information, students should be able to evaluate what their specific needs are in terms of curricula and programming. Institutions will be able to identify which courses and resources are deemed most necessary for relevant and sustainable programs. And equine programs nationwide will be able to continue for future generations.

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Appendices

Appendix A

Approved IRB Protocol 24-920 EX 2406

AUBURN UNIVERSITY HUMAN RESEARCH PROTECTION PROGRAM (HRPP)

EXEMPT REVIEW APPLICATION

For assistance, contact: **The Office of Research Compliance (ORC)**
Phone: **334-844-5966** E-Mail: **IRBAdmin@auburn.edu** Web Address: **http://www.auburn.edu/research/vpr/ohs Submit completed form and supporting materials as one PDF through the IRB Submission Page**

Hand written forms are not accepted. Where links are found hold down the control button (Ctrl) then click the link..

1. Project Identification **Today's Date:** Click or tap to enter a date.

Anticipated start date of the project: July 1, 2024 Anticipated duration of project: 1 Year

a. Project Title: A Nationwide Programmatic Evaluation of Four-Year Equine Degree Programs

b. Principal Investigator (PI): Jessica Brown Degree(s): MEd
Rank/Title: Graduate Student Department/School: Curriculum and Teaching Role/responsibilities in this project: **PI, design, consent process, data collection, data analysis, reporting, sending recruitment emails to equine department chairs/faculty from an AU email address (the public emails of all participants can be found on their institutions websites, and the student and faculty PIs are not members of these institutions), who are 18 years of age or older.**
Preferred Phone Number: **334-740-3827** AU Email: jlb0139@auburn.edu

Faculty Advisor Principal Investigator (if applicable): Jason McKibben
Rank/Title: Assistant Professor Department/School: Curriculum and Teaching
Role/responsibilities in this project: **Faculty PI, consent process, design**
Preferred Phone Number: **334-844-4434** AU Email: jdm0184@auburn.edu

Department Head: Paul Fitchett Department/School: Curriculum and Teaching
Preferred Phone Number: **334-844-8434** AU Email: pgf0011@auburn.edu
Role/responsibilities in this project: Consent Process

c. Project Key Personnel – Identify all key personnel who will be involved with the conduct of the research and describe their role in the project. Role may include design, recruitment, consent process, data collection, data analysis, and reporting. (To determine key personnel, see decision tree**).** *Exempt determinations are made by individual institutions; reliance on other institutions for exempt determination is not feasible. Non-AU personnel conducting exempt research activities must obtain approval from the IRB at their home institution.*

Key personnel are required to maintain human subjects training through CITI. Please provide documentation of completed CITI training, with course title(s) and expiration date(s) shown. As a reminder, both IRB and RCR modules are required for all key study personnel.

Name: Jessica Brown Degree(s): **MEd**

Rank/Title: Graduate Student Department/School: Curriculum and Teaching

Role/responsibilities in this project: **PI, design, consent process, data collection, data analysis, reporting**

- AU affiliated? ☒ Yes ☐ No If no, name of home institution: **NA**
- Plan for IRB approval for non-AU affiliated personnel? **NA**
- Do you have any known competing financial interests, personal relationships, or other interests that could have influence or appear to have influence on the work conducted in this project? ☐ Yes ☒ No - If yes, briefly describe the potential or real conflict of interest: **NA**
- Completed required CITI training? ☒ Yes ☐ No If NO, complete the appropriate CITI basic course and update the revised Exempt Application form.
- If YES, choose course(s) the researcher has completed: Human Sciences Basic Course 5/17/2027 Responsible Conduct of Research 1/26/2026

Name: Jason McKibben Degree(s): **PhD**

Rank/Title: Assistant Professor Department/School: Curriculum and Teaching

Role/responsibilities in this project: Faculty PI, consent process, design

- AU affiliated? ☒ Yes ☐ No If no, name of home institution: **NA**
- Plan for IRB approval for non-AU affiliated personnel? **NA**
- Do you have any known competing financial interests, personal relationships, or other interests that could have influence or appear to have influence on the work conducted in this project? ☐ Yes ☒ No - If yes, briefly describe the potential or real conflict of interest: **NA**
- Completed required CITI training? ☒ Yes ☐ No If NO, complete the appropriate CITI basic course and update the revised EXEMPT application form.
- If YES, choose course(s) the researcher has completed: Human Sciences Basic Course 8/2/2026 Responsible Conduct of Research 8/2/2026

Name: NA Degree(s): **NA**

Rank/Title: NA Department/School: NA

Role/responsibilities in this project: **NA**

- AU affiliated? ☐ Yes ☐ No If no, name of home institution: **NA**
- Plan for IRB approval for non-AU affiliated personnel? **NA**

- Do you have any known competing financial interests, personal relationships, or other interests that could have influence or appear to have influence on the work conducted in this project? ☐ Yes ☐ No
- If yes, briefly describe the potential or real conflict of interest: **NA**
- Completed required CITI training? ☐ Yes ☐ No If NO, complete the appropriate CITI basic course and update the revised EXEMPT application form.
- If YES, choose course(s) the researcher has completed: NA NA

d. Funding Source – Is this project funded by the investigator(s)? Yes ☐ No ☒ Is this project funded by AU? Yes ☐ No ☒ If YES, identify source NA
Is this project funded by an external sponsor? Yes ☐ No ☒ If YES, provide name of sponsor, type of sponsor
(governmental, non-profit, corporate, other), and an identification number for the award. Name: **NA** Type: **NA** Grant #: **NA**

e. List other AU IRB-approved research projects and/or IRB approvals from other institutions that are associated with this project. Describe the association between this project and the listed project(s):
NA

2. Project Summary

a. Does the study *TARGET* any special populations? Answer YES or NO to all.

Minors (under 18 years of age; if minor participants, at least 2 adults must be present during all research procedures that include the minors)	Yes ☐ No ☒
Auburn University Students	Yes ☐ No ☒
Pregnant women, fetuses, or any products of conception	Yes ☐ No ☒
Prisoners or wards (unless incidental, not allowed for Exempt research)	Yes ☐ No ☒
Temporarily or permanently impaired	Yes ☐ No ☒

b. Does the research pose more than minimal risk to participants? Yes ☐ No ☒

If YES, to question 2.b, then the research activity is NOT eligible for EXEMPT review. Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research is not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or test. 42 CFR 46.102(i)

c. Does the study involve any of the following? *If YES to any of the questions in item 2.c, then the research activity is NOT eligible for EXEMPT review.*

Procedures subject to FDA regulations (drugs, devices, etc.)	Yes ☐ No ☒
Use of school records of identifiable students or information from	

instructors about specific students. Yes ☐ No ☒

Protected health or medical information when there is a direct or indirect link which could identify the participant. Yes ☐ No ☒

Collection of sensitive aspects of the participant's own behavior, such as illegal conduct, drug use, sexual behavior or alcohol use. Yes ☐ No ☒

d. **Does the study include deception? Requires limited review by the IRB*** Yes ☐ No ☒

3. MARK the category or categories below that describe the proposed research. Note the IRB Reviewer will make the final determination of the eligible category or categories.

☐ **1.** Research conducted in established or commonly accepted educational settings, involving normal educational practices. The research is not likely to adversely impact students' opportunity to learn or assessment of educators providing instruction. 104(d)(1)

☒ **2.** Research only includes interactions involving educational tests, surveys, interviews, public observation if at least ONE of the following criteria. (The research includes data collection only; may include visual or auditory recording; may NOT include intervention and only includes interactions). **Mark the applicable sub-category below (I, ii, or iii). 104(d)(2)**

☐ **(i)** Recorded information cannot readily identify the participant (directly or indirectly/ linked);

OR

- surveys and interviews: no children;
- educational tests or observation of public behavior: can only include children when investigators do not participate in activities being observed.

☒ **(ii)** Any disclosures of responses outside would not reasonably place participant at risk; **OR**

☐ **(iii)** Information is recorded with identifiers or code linked to identifiers and IRB conducts limited review; no children. **Requires limited review by the IRB.***

☐ **3.** Research involving Benign Behavioral Interventions (BBI)** through verbal, written responses including data entry or audiovisual recording from adult subjects who prospectively agree and ONE of the following criteria is met. (This research does not include children and does not include medical interventions. Research cannot have deception unless the participant prospectively agrees that they will be unaware of or misled regarding the nature and purpose of the research) **Mark the applicable sub-category below (A, B, or C).** 104(d)(3)(i)

☐ **(A)** Recorded information cannot readily identify the subject (directly or indirectly/ linked); **OR**

☐ **(B)** Any disclosure of responses outside of the research would not reasonably place subject at risk;

OR

☐ **(C)** Information is recorded with identifies and cannot have deception unless participants prospectively agree. **Requires limited review by the IRB.***

☐ **4.** Secondary research for which consent is not required: use of identifiable information or identifiable bio-specimen that have been or will be collected for some other 'primary' or 'initial' activity, if one of the following criteria is met. Allows retrospective and prospective secondary use. **Mark the applicable sub-category below (i, ii, iii, or iv).** 104 (d)(4)

☐ **(i)** Bio-specimens or information are publicly available;

☐ **(ii)** Information recorded so subject cannot readily be identified, directly or indirectly/linked investigator does not contact subjects and will not re-identify the subjects; **OR**

☐ **(iii)** Collection and analysis involving investigators use of identifiable health information when us is regulated by HIPAA "health care operations" or "research" or "public health activities and purposes" (does not include bio-specimens (only PHI and requires federal guidance on how to apply); **OR**

☐ **(iv)** Research information collected by or on behalf of federal government using government generated or collected information obtained for non-research activities.

☐ **5.** Research and demonstration projects which are supported by a federal agency/department AND designed to study and which are designed to study, evaluate, or otherwise examine: (i)public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or service under those programs. (must be posted on a federal web site). 104.5(d)(5) (must be posted on a federal web site)

☐ **6.** Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives and consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. The research does not involve prisoners as participants. 104(d)(6)

***Limited IRB review – the IRB Chair or designated IRB reviewer reviews the protocol to ensure adequate provisions are in place to protect privacy and confidentiality.*

***Category 3 – Benign Behavioral Interventions (BBI) must be brief in duration, painless/harmless, not physically invasive, not likely to have a significant adverse lasting impact on participants, and it is unlikely participants will find the interventions offensive or embarrassing.*

**** Exemption categories 7 and 8 require broad consent. The AU IRB has determined the regulatory requirements for legally effective broad consent are not feasible within the current institutional infrastructure. EXEMPT categories 7 and 8 will not be implemented at this time.*

4. Describe the proposed research including who does what, when, where, how, and for how long, etc. a. Purpose

The purpose of this research is to evaluate four-year equine degree programs being offered at colleges/universities nationwide. To determine what the programs offer in terms of curricula and resources and how that meets the objectives for students to successfully reach graduation.

b. Participant population, including the number of participants and the rationale for determining number of

participants to recruit and enroll. Note if the study enrolls minor participants, describe the process to ensure more than 1 adult is present during all research procedures which include the minor.

The target population are department heads/senior faculty working in four-year equine degree programs at colleges/universities nationwide. We have identified approximately 70 programs through online searches and determined applicable participants through their college/university websites. These individuals would be considered experts in the field and would be the most suitable to offer responses. We hope to receive full participation.

c. Recruitment process. Address whether recruitment includes communications/interactions between study staff and potential participants either in person or online. *Submit a copy of all recruitment materials.*

Department heads/senior faculty will be invited to participate in this study via email. Upon agreement, they will be directed through an online link to a Qualtrics survey instrument. The email itself will contain an explanation of the survey as well as a reassurance of privacy and anonymity. Upon agreeing to participate, the participants will again be notified on the Qualtrics survey that their responses will be non-identifiable. Participants will be able to exit the survey at any point with no recourse.

d. Consent process including how information is presented to participants, etc.

The initial email requesting participation in the survey will be used to inform potential participants of the process the study will take, this letter will tell participants that they are free to leave the study at any point with no ramifications, their participation will bring them no benefit, and that their participation or lack of participation will not affect any relationships they have with AU or AU personal. Jessica Brown is responsible for and will answer any questions regarding consent.

e. Research procedures and methodology

The survey will be conducted and recorded via Qualtrics. The survey answers will be stored in the University-provided Box cloud storage. The data analysis will also be stored on the University-provided Box cloud storage.

f. Anticipated time per study exercise/activity and total time if participants complete all study activities. **The survey is anticipated to be completed in 15-20 minutes.**

Nationwide

g. Location of the research activities.

The research is conducted remotely by an online Qualtrics survey.

Costs to and compensation for participants? If participants will be compensated describe the amount, type, and process to distribute.
There are no costs to participate other than their time for the survey and participants will receive no compensation.

h. Non-AU locations, site, institutions. *Submit a copy of agreements/IRB approvals.* **NA**

Describe how results of this study will be used (presentation? publication? thesis? dissertation?) **dissertation, presentation, publication**

Additional relevant information. **NA**

5. Waivers
Check applicable waivers and describe how the project meets the criteria for the waiver.

☐ Waiver of Consent (Including existing de-identified data)

☒ Waiver of Documentation of Consent (Use of Information Letter, rather than consent form requiring signatures)

☐ Waiver of Parental Permission (in Alabama, 18 years-olds may be considered adults for research purposes) https://sites.auburn.edu/admin/orc/irb/IRB 1 Exempt and Expedited/11-113 MR 1104 Hinton Renewal 2021-1.pdf

a. Provide the rationale for the waiver request.
This evaluation uses standard survey methodology and provides no more risk than would be experienced in an average day. All potential participants are 18 or older and can opt out of the evaluation at any point with no ramification. Data will be collected confidentially, and any identifiable information will be removed at all points.

6. Describe the process to select participants/data/specimens. If applicable, include gender, race, and ethnicity of the participant population.
Online searches of publicly available information were used to determine both degree programs and department heads/senior faculty as listed for each of the programs.

7. Risks and Benefits
7a. Risks - Describe why none of the research procedures would cause a participant either physical or psychological discomfort or be perceived as discomfort above and beyond what the person would experience in daily life (minimal risk).
This survey is completely voluntary, and the participant can withdraw from the study at any point. This study uses no methods or topics that could be considered to cause discomfort either physical or emotional. No risks to participants are anticipated.

7b. Benefits – Describe whether participants will benefit directly from participating in the study. If yes, describe the benefit. And, describe generalizable benefits resulting from the study.

This study provides no direct benefits to the participants. However, generalizable benefits resulting from the study include a greater understanding of the curricula and resources necessary to facilitate a successful four-year equine degree program in the United States. This will hopefully serve as a resource to such programs both in development and sustainability.

8. **Describe the provisions to maintain confidentiality of data, including collection, transmission, and storage. Identify platforms used to collect and store study data.** *For EXEMPT research, the AU IRB recommends AU BOX or using an AU issued and encrypted device. If a data collection form will be used, submit a copy.*

All data collection will take place confidentially over Qualtrics. The data collected, such as the survey answers, will be stored in the University provided cloud storage, Box. This storage method is password protected. All data will be collected confidentially. If at any point the participant decides to exit the survey, they are allowed with no ramifications.

The name or contact information will never be associated with the data collected. Any reporting will be done in aggregated form with no individual markers.

a. If applicable, submit a copy of the data management plan or data use agreement.

NA

9. **Describe the provisions included in the research to protect the privacy interests of participants (e.g., others will not overhear conversations with potential participants, individuals will not be publicly identified or embarrassed).**

The survey will be conducted remotely over Qualtrics. Any reports will be done with aggregated and anonymized data.

10. **Does this research include purchase(s) that involve technology hardware, software or online services? ☐ YES ☒ NO**

If YES:

A. Provide the name of the product NA **and the manufacturer of the product** NA

B. Briefly describe use of the product in the proposed human subject's research.

NA

C. To ensure compliance with AU's Electronic and Information Technology Accessibility Policy, contact AU IT Vendor Vetting team at vetting@auburn.edu to learn the vendor registration process (prior to completing the purchase).
D. Include a copy of the documentation of the approval from AU Vetting with the revised submission.

11. Additional Information and/or attachments.

In the space below, provide any additional information you believe may help the IRB review of the proposed research. If attachments are included, list the attachments below. Attachments may include recruitment materials, consent documents, site permissions, IRB approvals from other institutions, data use agreements, data collection form, CITI training documentation, etc.

Attached: Email Invitation, Online Information Letter, Survey Questions, Jessica Brown CITI Training Documents,

Jason McKibben CITI Training Documents

Required Signatures *(If a student PI is identified in item 1.a, the EXEMPT application must be re-signed and updated at every revision by the student PI and faculty advisor. The signature of the department head is required only on the initial submission of the EXEMPT application, regardless of PI. Staff and faculty PI submissions require the PI signature on all version, the department head signature on the original submission)*

Signature of Principal Investigator: Jessica L Brown **Date:** **5/24/24**

Signature of Faculty Advisor (If applicable): Jason Mc Kibben
Date: **05/28/2024**

Revised 09/13/2023

Paul G. Fitchett

Digitally signed by Paul G. Fitchett
Date: 2024.05.28 10:56:00

Signature of Dept. Head: _____
Date:_____-05'00'

Version Date: Click or tap to enter a date.

Appendix B

Online Information Letter

Hello!

You have been invited to participate in a research study evaluating four-year equine degree programs in the United States. This study is being conducted by Jessica Brown, a PhD student in the Career and Technical Education program, under the direction of Dr Jason McKibben, in the College of Education at Auburn University.

Four-year Equine Degree programs come in many different formats across the country, and we would like to evaluate what curricula and resources are proving to be the most successful. As a department head or senior faculty member in your program, we feel that you will be able to provide the best insight into what it takes to produce successful graduates and sustainable programs.

If you choose to participate, and are 18 years or older, you will follow the link below to a Qualtrics survey which should take no more than 15-20 minutes of your time to complete. Your participation is completely voluntary, and should you wish not to participate or to withdraw at any point in the process, it will not jeopardize any future relations with Auburn University or its affiliates. There are no risks or discomforts accompanying this study, you will not be compensated or incur costs, and you will not directly benefit from this research. However, your contributions will hopefully serve as a resource to equine programs both in development and sustainability.

The study findings will only report grouped results, and your individual participation will not be shared so feel free to report honestly, even if it does not align with your current program. Responses will be stored in a secure folder in Box protected by two-factor authentication. Information collected through your participation may be used to fulfill an educational requirement, published in a professional journal, and/or presented at a professional conference.

If you have any questions or would like to withdraw your information from the study at any time without recourse, you may contact Jessica Brown (jlb0139@auburn.edu) or Jason McKibben (jdm0184@auburn.edu).

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334) 844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

If you wish to participate in this study, please access this Qualtrics link to start the survey.

Thank you,

Jessica Brown
PhD Student in Career and Technical Education, Auburn University

Appendix C

Initial Email Invitation

Hello!

You have been invited to participate in a research study evaluating four-year equine degree programs in the United States. This study is being conducted by Jessica Brown, a PhD student in the Career and Technical Education program, in the College of Education at Auburn University.

Four-year Equine Degree programs come in many different formats across the country, and we would like to evaluate what curricula and resources are proving to be the most successful. As a department head or senior faculty member in your program, we feel that you will be able to provide the best insight into what it takes to produce successful graduates and sustainable programs.

If you choose to participate, please follow the link below to access an online Qualtrics survey that should take no more than 10-15min of your time. If you have any questions, please contact me at jlb0139@auburn.edu. Or my advisor, Dr Jason McKibben at jdm0184@auburn.edu.

Thank you for your time,

Jessica Brown
PhD candidate at Auburn University

Qualtrics survey link

Information letter link

Appendix D

First Reminder Email

Hi _____

I recently sent you a survey regarding the equine program that you currently work with. If you have already completed the survey, thank you for your input, if not, please consider completing it now.

Having a BS in Equine Science myself and spending the last twenty years working both in the industry and academia, I truly believe in the value of an equine education and am now pursuing a PhD so that I may continue my role in this field. However, I also understand how hard it is to keep these programs not only running, but relevant.

As a senior member in your program, you will be able to offer the best insight into what works and does not work in equine education. Your opinions, even if they do not strictly align with those of your school, reflect years of experience in a field that is currently underrepresented in research findings. I am hoping that the data I receive will prove helpful to the programs that are still out there, and I will send those results to all who participate.

Please follow the link below to access this short survey and make an impact on the role of equine education moving forward.

Thank you,
Jessica Brown

Qualtrics Survey Link

Appendix E

Second Reminder Email

Hi _____

I recently sent you a survey regarding the equine program that you currently work with. If you have already completed the survey, thank you for your input, if not, please consider completing it now.

I have already given you a bit of my personal background, so you know I am truly invested in the field of equine education. Now I am going to try to appeal to your sense of research. Equine education is currently underrepresented in the research, with most data stemming from the 1970's when these programs really started to debut. I would like to add more to the findings to support the programs who are still making it work.

For any of you who have done research or written a thesis or dissertation, you know how important it is to have as much data as possible to work with. Please help me reach my goals by providing me with your thoughts and opinions so that my report can be as robust as possible.

Follow the link below to access this short survey and make an impact on the role of equine education moving forward.

Thank you,
Jessica Brown

Qualtrics Survey Link

Appendix F

Qualtrics Survey Instrument

A Programmatic Evaluation of Four-Year Equine Degree Programs in the United States

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Start of Block: Default Question Block

Hello! Because of your high level of expertise, you have been invited to participate in an evaluation of four-year equine degree programs in the United States. As such an expert in **our** field, it is only with **your** help that we can help move our industry forward. Four-year Equine Degree programs come in many different formats and we would like to evaluate what curricula and resources are proving to be the most successful. As a department head or senior faculty member in your program, we feel that you will be able to provide the best insight into what it takes to produce successful graduates and sustainable programs.

To help, please click yes below.

If you would like more information about this study, an information letter can be obtained here: Information Letter.

If you have any questions, please contact me at jlb0139@auburn.edu. Or my advisor, Dr Jason McKibben at jdm0184@auburn.edu.

Thank you for your time,

Jessica Brown PhD candidate at Auburn University

- ○ Yes, I am willing to help (1)
- ○ No, I am not willing to help. (2)

Skip To: End of Survey If Hello! Because of your high level of expertise, you have been invited to participate in an evalua... = No, I am not willing to help.

Q1 What best describes the type of program you have?

- ○ Equine Specific Program (Equine Science, Equine Studies, Equine Business, etc) (1)
- ○ Agricultural Science with an equine focus/specialization/concentration/certificate/etc (2)
- ○ Animal Science with an equine focus/specialization/concentration/certificate/etc (3)
- ○ Business, Pre-Professional, Interdisciplinary Studies with an equine focus/specialization/concentration/certificate/etc (4)

X→

Q2 How do you primarily recruit students to your program? Select all that apply

- ☐ University Based (Not program specific) (1)
- ☐ Online (Program specific) (2)
- ☐ Horse Shows/Clinics (3)
- ☐ Word of Mouth/Alumni (4)
- ☐ Scholarships (5)
- ☐ Youth Organizations (4-H, FFA, Pony Club, etc...) (7)
- ☐ Other (6) _____

X→

Q3 What level of equine experience are your students required to have coming in to the program?

- None (1)
- Some Exposure (2)
- Basic Skill Set (3)
- Intermediate Skill Set (4)
- Advanced Skill Set (5)

Q4 What level of equine experience do you think students should have coming in to the program to be successful upon graduation?

- None (1)
- Some Exposure (2)
- Basic Skill Set (3)
- Intermediate Skill Set (4)
- Advanced Skill Set (5)

Q5 How would you rate the following courses on their level of importance for students to be able to be successful in the equine industry upon graduation?

	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)
General Nutrition (1)	○	○	○	○	○
Equine Specific Nutrition (2)	○	○	○	○	○
General Anatomy/Physiology (3)	○	○	○	○	○
Equine Specific Anatomy/Physiology (4)	○	○	○	○	○
General Reproduction (5)	○	○	○	○	○
Equine Specific Reproduction (6)	○	○	○	○	○
Genetics (7)	○	○	○	○	○
Equine Care/Managemnt (8)	○	○	○	○	○
Equine Health/Diseases (9)	○	○	○	○	○
Riding - Rider/Equitation Focus (10)	○	○	○	○	○
Riding - Horse/Training Focus (11)	○	○	○	○	○
Teaching/Instruction (12)	○	○	○	○	○
Sales/Marketing (13)	○	○	○	○	○
Economics/Accounting (14)	○	○	○	○	○
Facility Design/Management (15)	○	○	○	○	○
Behavior (16)	○	○	○	○	○

Evaluation/Selection/Judging (17)	○	○	○	○	○
Careers/Industry (18)	○	○	○	○	○
Current Issues (19)	○	○	○	○	○
Communication (20)	○	○	○	○	○

Q6 Please rank the level of importance of the following resources within the curriculum, for students to be properly prepared?

_____ Horses (1)
_____ Barns/Stalls (2)
_____ Arenas (3)
_____ Classrooms/Laboratory Space (4)
_____ Technology (5)
_____ Textbooks/Materials (6)
_____ Industry Specific Professionals (7)
_____ Other (8)

Q7 What resources outside of the curriculum are needed to support a successful program? (Select all that apply)

- [ ] University Support (1)
- [ ] Funding/Revenue Streams (2)
- [ ] Industry Collaboration (3)
- [ ] Alumni Support (4)
- [ ] Marketing/Advertising (5)
- [ ] Other (6) _____

Q8 What extra-curricular activities do you think students should participate in to be successful in the equine industry upon graduation? (Select all that apply)

- [ ] Internships (1)
- [ ] Industry Employment (2)
- [ ] Showing (3)
- [ ] Clinics (4)
- [ ] Clubs/Student Organizations (5)
- [ ] Other (6) _____

Q9 If you do not have an equine specific program, what percentage of your total population of students are equine focused?

- 0% (0)
- 1-10% (1)
- 11-20% (2)
- 21-30% (3)
- 31-40% (4)
- 41-50% (5)
- 51-60% (6)
- 61-70% (7)
- 71-80% (8)
- 81-90% (9)
- 91-99% (10)
- I have an equine specific program. (11)

Q10 What percentage of classes in an equine specific program should be lecture versus lab?
_____ Lecture (1)
_____ Lab (2)

Q11 Equine degrees should include multiple tracking options (For example: business, science, therapeutics, etc).

- Strongly Agree (1)
- Somewhat Agree (2)
- Neither Agree nor Disagree (3)
- Somewhat Disagree (4)
- Strongly Disagree (5)

Q12 I believe specialized tracks...

- Take away from a general equine knowledge base (1)
- Allow students to specialize for their entire education (2)
- Should be offered once core knowledge has been gained (3)

Q13 What percentage of the students who begin your program successfully graduate from your program, regardless of track?

- 90-100% (1)
- 80-89% (2)
- 70-79% (3)
- 60-69% (4)
- 50-59% (5)
- 40-49% (6)
- 30-39% (7)
- 20-29% (8)
- 10-19% (9)
- 0-9% (10)

Q14 What are the approximate graduation rates for equine students in your program? (This may be the same number)

- 90-100% (1)
- 80-89% (2)
- 70-79% (3)
- 60-69% (4)
- 50-59% (5)
- 40-49% (6)
- 30-39% (7)
- 20-29% (8)
- 10-19% (9)
- 0-9% (10)

Q15 What approximate percentage of your students are going into the following areas upon graduation?

_____ Graduate/Vet School (1)
_____ Primary Equine Industry (Manager, Trainer, Vet Tech, etc) (2)
_____ Secondary Equine Industry (Feed Sales, Show Management, Marketing, etc) (3)
_____ Non-Equine Industry, But still Agriculture or Animal Science (4)
_____ Non-Equine Industry, Non-Agriculture, Non-Animal Science (5)

Q16 What is the approximate number of students currently enrolled in your program over all four years?

- 0-50 (1)
- 51-100 (2)
- 101-150 (3)
- 151-200 (4)
- 201-250 (5)
- 251-300 (6)
- 300+ (7)

Q17 Approximately how many horses are utilized in your program?

- O (12)
- 1-10 (1)
- 11-20 (2)
- 21-30 (3)
- 31-40 (4)
- 41-50 (5)
- 51-60 (6)
- 61-70 (7)
- 71-80 (8)
- 81-90 (9)
- 91-100 (10)
- 100+ (11)

Q18 How are the horses used? Select all that apply

- ☐ Management/Handling Classes (1)
- ☐ Riding/Training Classes (2)
- ☐ Production/Reproduction Classes (3)
- ☐ Research (4)
- ☐ Other (5) _____

Q19 How many total faculty are in your program?

- ○ 0-5 (1)
- ○ 6-10 (2)
- ○ 11-15 (3)
- ○ 16-20 (4)
- ○ 21-25 (5)
- ○ 25+ (6)

Q20 What percentage of the faculty who instruct in your degree/program are equine specific versus animal/agricultural science or other specie?

_____ Equine Specific (1)
_____ Animal/Agricultural Sciences or Other Specie (2)

*

Q21 At your institution, what percentage of your equine faculty are full time, part time, adjunct, or visiting?

_____ Full Time (1)
_____ Part Time (2)
_____ Adjunct (3)
_____ Visiting (4)

*

Q22 At your institution, what percentage of your equine faculty are tenured versus non-tenured?

_____ Tenured/Tenure Track (1)
_____ Non-tenure Track (2)

Q23 What resources do you wish your students had access to that would make them more successful upon graduation? (Select all that apply and fill in specifics if possible)

☐ Classes - Types/Numbers (1) _____

☐ Labs - Types/Numbers (2) _____

☐ Equipment - Technology/Tack/Laboratory Supplies/etc (3) _____

☐ Horses - Types/Numbers (4) _____

☐ Industry Contacts - Jobs/Mentorships/etc (5) _____

☐ Other (6) _____

Q24 What should be the objectives of a successful four-year equine degree program? (For example: To produce students with a working knowledge of equine management or To produce students who can successfully compete for positions in the equine industry)

_____

_____

_____

_____

_____

Q25 What degrees do you hold? (Select all that apply)

- ☐ High School/GED (1)
- ☐ AA/AS/AM/AT (Associates) (2)
- ☐ BA/BS/BT (Bachelors) (3)
- ☐ MS/MA/MED/MT etc... (Masters) (4)
- ☐ DVM (5)
- ☐ PhD (6)
- ☐ EdD (7)
- ☐ Other (8) _____

Q26 How many years of industry experience did you have prior to joining academia?

- 0-5 (1)
- 6-10 (2)
- 11-15 (3)
- 16-20 (4)
- 20+ (5)

Q27 What is your age group?

- 18-30 (1)
- 31-40 (2)
- 41-50 (3)
- 51-60 (4)
- 61-70 (5)
- 71+ (6)

Q28 What is your gender?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

Q29 What is your race?

- Asian (1)
- Black or African American (2)
- White or Caucasian/Not Hispanic (3)
- Hispanic (4)
- Native Hawiian or Other Pacific Islander (5)
- American Indian or Alaska Native (6)
- Other (7) _____
- Prefer Not to Say (8)

End of Block: Default Question Block