

Expanding Student Opportunity Through the Integration of a Pre-veterinary Major at Iowa State University

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April 25, 2024

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New Student Success
Iowa State University
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Dear Dr. Toyia Younger, Dr. Ann Marie VanDerZanden, Dr. Sharron Evans, Daniel Robinson,

It is an honor to present this recommendation for a new Pre-veterinary major to the Associate Provost for Academic Programs and the Office of Student Affairs. Throughout this report, our team recommends that Iowa State University add a Pre-veterinary major to the university's current major offerings. As a team, we have researched the importance of Pre-veterinary programs across the United States, with a special focus on post-graduate preparation and employability statistics.

This report was authorized on March 26th by Professor Karla Ruden. This report aims to explain the need for a Pre-veterinary major option at Iowa State University through the research topics of Student Interest, Employability and Growth, and University Benefits and Post-Graduate Preparation. As a team, we have concluded that there is interest in this new program. Furthermore, this program would fill a demand in the veterinary field and help with post-graduate preparation. Using these conclusions, professional development and educational recommendations have been made.

When conducting the included student interest survey, we ran into sample size issues. To overcome this obstacle, we reached out to the Animal Ecology department and had an advisor send the survey to as many people as they could. Furthermore, research was difficult to find, but we overcame this by using university databases.

Although thorough research has been conducted, more research can be done. Surveying more Iowa State University students regarding adding a Pre-veterinary major would be beneficial. Also, interviewing faculty could provide critical feedback regarding the feasibility of adding this new program. Finally, looking into financial reports and students outside of the university would be worthwhile.

Thank you for taking the time to read and consider this report. If there are any questions, please don't hesitate to ask. Our team looks forward to working with the university to continue the growth and improvement of its current programs.

Sincerely,

Team 1

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Executive Summary

This consulting report proposes the addition of a Pre-veterinary major to Iowa State University's current major offerings. This major will help Iowa State University develop undergraduate education in veterinary medicine. At Iowa State University, students interested in veterinary medicine must pursue an Animal Science major or an Animal Ecology major. Within these majors is a Pre-veterinary track, but obtaining a Pre-veterinary Bachelor of Science is not possible. Iowa State University can better serve current and prospective students' needs by introducing a standalone Pre-veterinary major.

This report focuses on three essential criteria: Student Interest, Employability and Growth, and University Benefits and Post-Graduate Preparation. These criteria discuss topics such as potential student interest, student enrollment, graduate admissions, job outlook, and demand. Our research methods include primary research in the form of a survey and secondary research in the form of online scholarly articles.

Our research indicates a strong student interest in a standalone Pre-veterinary major, with almost half the participants surveyed expressing enthusiasm for a new program. Moreover, the report finds that a career in veterinary medicine is increasing in demand. This career is highly employable, but it requires immense preparation. Finally, the report also discusses the potential benefits for the university, including attracting more students and preparing students for veterinary school. Based on the conclusions of our research and to ensure the successful implementation of a new major, the report recommends the following:

1. Implement Specific Veterinary Medicine/Science Courses

- a. Create more undergraduate courses that specialize in veterinary medicine/science.
- b. Create a “Careers in Veterinary Science” course.

2. Increase Graduate Resource Awareness for Students

- a. Increase awareness of the difficulty of veterinary school admissions through a multiple-session seminar.
- b. Increase awareness of the growing demand for veterinarians.

Introduction

To ensure the academic and future success of incoming and existing students, Iowa State University should implement a dedicated Pre-veterinary major. Research questions have been developed to analyze the potential advantages to students and to the university itself. This report examines specific criteria for the successful implementation of a Pre-veterinary program, recognizes limitations, and formulates recommendations for moving forward.

Purpose & Scope

At Iowa State University, Pre-veterinary students currently fall into one of two undergraduate majors offered within the College of Agriculture and Life Sciences: Animal Science and Animal Ecology. While a general Pre-veterinary track is offered within these majors, there should be a degree program that sits independently. Animal Science and Animal Ecology provide a solid basis for obtaining a job and gaining admittance into graduate schools, such as the College of Veterinary Medicine, after college. However, they do not offer a specialized route for those who want to further their veterinary education while they are in undergraduate school. This report recommends that Iowa State University add a Pre-veterinary major to its current major offerings. By doing this, Iowa State University could attract more students, and this program could help fill the increasing demand for veterinarians across the United States.

This report will cover several topics, including student interest in this potential major, employability and growth, university benefits, and post-graduate preparation. This report will include primary research that was conducted via a survey administered to students in the Animal Ecology and Animal Science programs. Furthermore, the report will consist of secondary research in the form of online articles. The research provided doesn't include faculty within the College of Veterinary Medicine or the College of Agriculture and Life Sciences. Moreover, the research will focus only on undergraduate students in the Animal Science and Animal Ecology majors.

Assumptions

Due to established Animal Science and Animal Ecology curriculums, it can be assumed that implementing this major would be easier than implementing an entirely new curriculum attached to a brand-new major. Lastly, Iowa State University has many faculty in veterinary medicine, agriculture, and life sciences. Because of this, it is assumed that there would be enough faculty to teach within this new major program.

Methods

The methods of research when it comes to the consulting report are as follows:

Through the utilization of primary research, students in the majors of Animal Science and Animal Ecology were surveyed. These students were surveyed from a large, midwestern

university. Each student was an undergraduate, and most of those surveyed were in the Animal Ecology program. These students were surveyed about their current major and interest level in a new Pre-veterinary major. They were also asked to provide a small explanation of the reasoning behind their interest.

It is crucial to have accurate, non-biased, up-to-date information. When researching this topic, sources were used from scholarly websites and Iowa State University's website. The provided secondary sources cover topics such as veterinary job outlook, the effects of COVID-19 on the profession, other colleges' Pre-veterinary major programs, and current Iowa State University student statistics.

Limitations

Several limitations were faced when conducting research for this consulting report. Due to a time limitation, the survey could only be kept open for a week. This limited the number of responses that were received. Furthermore, the survey didn't include future Iowa State students, graduates, or students studying other majors. Moreover, the survey was primarily sent to the Department of Animal Ecology, which affected responses. Additionally, only one member of the team is on a Pre-veterinary track, so the remainder of the team has limited knowledge about the target population. While there were limitations during this process, the research and coverage of this topic were kept accurate and relevant.

Definitions

1. **Animal Ecology:** The study of the relationship between animals and their natural environment, including their specific ecological niche.
2. **Animal Science:** The biological science and management of domestic livestock, including beef cattle, horses, sheep, swine, and companion animals.
3. **UMASS Amherst:** University of Massachusetts at Amherst.
4. **BS/DVM:** Bachelor of Science/Doctor of Veterinary Medicine.
5. **Tufts University:** A college with a school of veterinary medicine. The Cummings School of Veterinary Medicine at Tufts University has an early acceptance program. This is typically offered to undergraduate students enrolled at Tufts University, UMASS Amherst, and various other institutions.
6. **Feeder School:** A school with a track record of sending many or most students to a higher-level institution.
7. **GPA:** Grade point average.
8. **Pre-veterinary Major:** Undergraduate coursework that focuses on areas such as animal behavior, animal physiology, and immunology. The program also includes various labs and clinical work to enhance student's background.

Criteria

The following criteria act as guidelines for the performance of the research. This report will focus on solutions and explanations for the following issues.

1. Student Interest
2. Employability and Growth
3. University Benefits and Post-Graduate Preparation

This report will explain these points in greater detail. The first criterion is Student Interest in this new major. The second criterion is Employability and Growth. The last criterion is University Benefits and Post-Graduate Preparation. Each of these is individually important to the implementation of this new program, and they will be expanded upon throughout the analysis of criteria later in the report.

Background and History

Iowa State University has a rich history in veterinary medicine. The university was formed as a land grant college in March of 1858 and was used mainly as an agricultural college. In the year 1879, Iowa State University opened the first public school of veterinary medicine in the United States, and in the modern day, it is one of only 32 veterinary schools across the United States. The veterinary school used to be located in what is now Lagomarcino Hall until 1976, when a new building was erected known as Fredrick Douglas Patterson Hall. This current building, the primary academic building of the College of Veterinary Medicine, has helped to graduate more than 7,500 veterinarians (Iowa State University College of Veterinary Medicine).

Despite Iowa State University's history with veterinary medicine, there isn't currently a dedicated Pre-veterinary major at the university. In its current state, those interested in attending the College of Veterinary Medicine must either obtain an undergraduate degree in Animal Science or Animal Ecology. Due to Iowa State University's reputable veterinary school, having a major dedicated to preparing students for veterinary school will be beneficial.

Finally, veterinary medicine is a mentally taxing field, and due to large amounts of people adopting pets to keep them entertained during the COVID-19 pandemic, veterinarians have been overworked. With more pets comes a heightened need for veterinarians, as pets in many states are required to have certain shots and medications to live in residential areas. According to research performed by Katie Burns of the American Veterinary Medical Association, "The percentage of veterinarians with serious psychological distress increased to 9.7% in Fall 2021, compared with 6.4% in Fall 2019, and regression analysis suggests that this change was an effect of the COVID-19 pandemic" (Burns). The pandemic led to many veterinarians either leaving the field altogether or resorting to self-harm due to stress and being overwhelmed with work. This overworking has caused several veterinarians to change their professions and quit, creating a

high demand for more veterinarians. If Iowa State University were to add a dedicated Pre-veterinary major, it would be a step in the right direction to curb this trend.

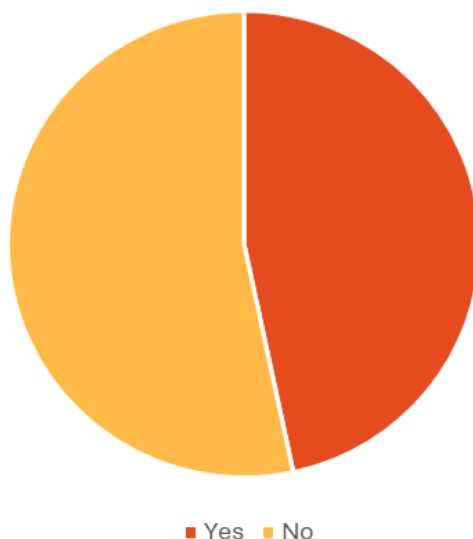
Analysis of Criteria

Student Interest

The first criterion, and the most important criterion, is Student Interest in an undergraduate Pre-veterinary major. This criterion is highly important due to its focus on Iowa State University students. If students from the university are uninterested in this major, it seems unlikely that it would be implemented. To research this criterion, a five-question survey was conducted. This survey asked Animal Science and Animal Ecology students about their interest in a new Pre-veterinary major option. The survey, as demonstrated in Figure 1, found that out of the 45 responses, 47% of the students would be interested in a dedicated Pre-veterinary major at Iowa State University. While this wasn't the expected response, it is still a significant finding, as the figure represents almost half of the collected sample. Additionally, as discussed in the limitations, most of the Animal Science department was left out of this sample. The expectation is that with more respondents and with a more developed curriculum, the student interest level will be higher.

Figure 1: Pre-veterinary Major Survey Responses

Would you be interested in a dedicated Pre-veterinary major at Iowa State University?



Almost half of the respondents surveyed would be interested in a new Pre-veterinary major program.

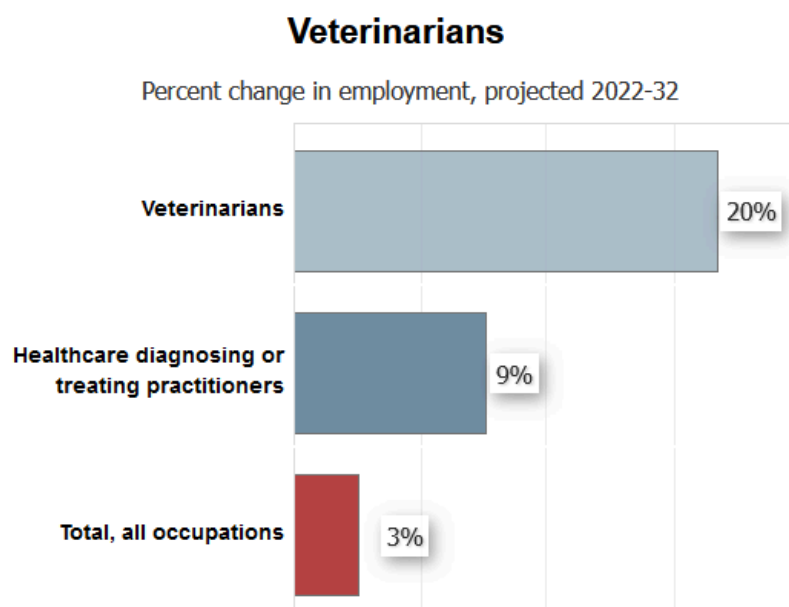
Furthermore, within the survey, an optional question was included in which students could add why they would be interested in this new major. Student responses included statements like “A

Pre-veterinary major would be more focused on the Pre-veterinary field rather than all things related to Animal Science” (Refer to survey in Appendix). Students also stated that a dedicated Pre-veterinary major option could make them “much more prepared for their future in veterinary school and make them more desirable candidates” (Refer to survey in Appendix). These quotes support the notion that students are interested in a new Pre-veterinary major option. This new major would benefit student studies, provide a specialized track for those interested in obtaining a veterinary education, and make students more competitive applicants for graduate school.

Employability and Growth

Employability and Growth, the second criterion of focus, is weighted below Student Interest because it is an essential factor when deciding whether to add a program to a university; however, the interest of the student body is more important. Most students attend college intending to pursue a degree that will provide them with employment after school. Therefore, the proposed Pre-veterinary major program needs to fill an existing need. According to the U.S. Bureau of Labor Statistics, the veterinary field is expected to grow “20 percent from 2022 to 2032”. This growth rate indicates a strong need for new veterinarians entering the field. In addition, as demonstrated in Figure 2, other healthcare diagnosing and treating practitioners are only projected to grow by 9% (U.S. Bureau of Labor Statistics). The total job outlook for these fields in the United States is 3% compared to veterinary medicine (U.S. Bureau of Labor Statistics). These numbers provide a stark comparison between the veterinary field and other occupations, and they indicate how essential veterinarians are to the functioning of society.

Figure 2: Projected Employment for Veterinarians from 2022-2032



Note: All Occupations includes all occupations in the U.S. Economy.

Source: U.S. Bureau of Labor Statistics, Employment Projections program

The percent change in the graph above indicates a significant demand for veterinarians for years to come.

Furthermore, the number of job openings within this field is only growing. According to the U.S. Bureau of Labor Statistics, “about 5,000 openings are projected each year, on average, over the decade”. These statistics indicate that creating a new Pre-veterinary major program at Iowa State University would help fulfill these projected openings. Moreover, integrating a Pre-veterinary major option would make students more aware of the employability of this field. This would likely result in more students wanting to pursue a career and major in this area.

University Benefits and Post-Graduate Preparation

The last criterion is University Benefits and Post-Graduate Preparation. This criterion is weighted last because our team believes the other two criteria are of utmost importance. Students' interest is essential, and an employable degree is longer lasting than one's educational experience. University Benefits and Post-Graduate Preparation are the finishing touches necessary for integrating a new program.

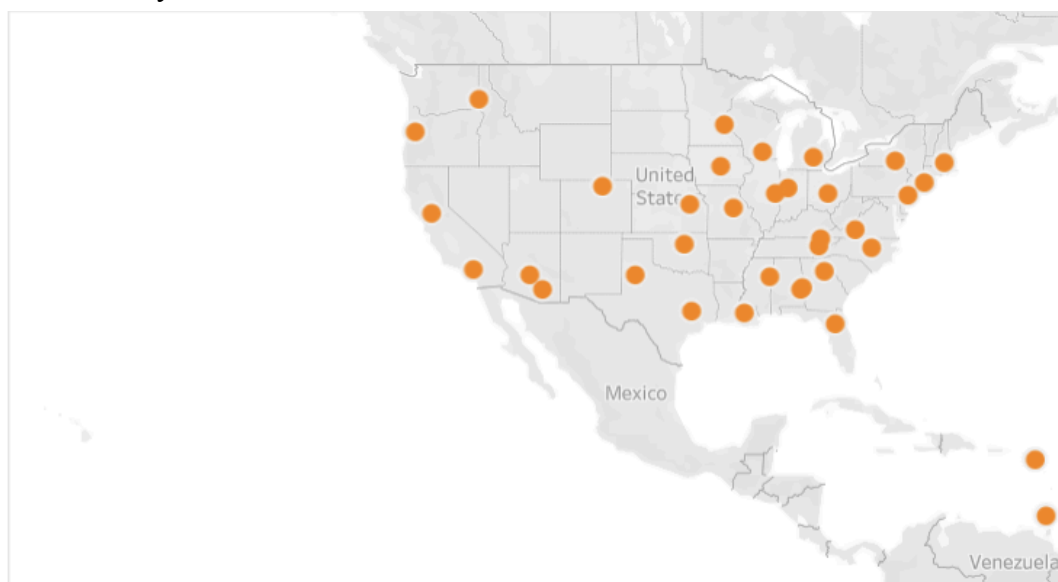
According to Iowa State University and the Office of the Registrar, out of 23,416 undergraduates enrolled in the Spring 2024 semester, 574 were undergraduate students in Animal Science and Animal Ecology. A dedicated Pre-veterinary major would benefit the university by increasing undergraduate student enrollment. More students would be drawn to the university, resulting in more funding for the university as a whole.

Many universities around the country offer their undergraduate students the option to major in Pre-veterinary Science. This fixed pathway includes courses required for admission to most veterinary schools. The University of Massachusetts Amherst (UMASS Amherst) is a top feeder school for the Cummings School of Veterinary Medicine at Tufts University. The students who attend UMASS Amherst can apply to the Bachelor of Science or Doctor of Veterinary Medicine (BS/DVM) Early Decision Program during their sophomore year. According to the Pre-veterinary advising team at UMASS Amherst, “A limited number of students are admitted, and upon acceptance, are guaranteed a space in Tufts veterinary school after they graduate” (University of Massachusetts Amherst College of Natural Sciences). This quote highlights how competitive Pre-veterinary programs are and how, with an undergraduate major in Pre-veterinary Science, students can prepare for these rigorous programs early.

The Pre-veterinary Science undergraduate major provides students with potential advantages when applying to graduate school. By implementing a Pre-veterinary program at Iowa State University, students can focus on courses specific to their graduate path that directly fulfill veterinary school admission requirements. Iowa State University is home to one of 32 veterinary institutions in the country. Because of the fact there are currently so few veterinary schools within the United States, as exemplified in Figure 3, veterinary school admissions can be a very

competitive environment. Having the dedicated Pre-veterinary program at Iowa State University would better prepare students for veterinary school and increase their likelihood of gaining admittance to one of the few veterinary schools in the United States.

Figure 3: Veterinary Schools Across the United States



Greenhill, L. (2023, April 11). Admitted Student Statistics. American Association of Veterinary Medical Colleges. www.aavmc.org.

The figure depicts the spread of veterinary schools throughout the United States.

Moreover, according to Arizona State University, a Bachelor of Science degree in Veterinary Science is offered to undergraduate students. Students in the program must take a course during their freshman year called “Careers in Veterinary Science,” which illustrates the potential careers one may enter with this degree. The course also provides a guide that prepares student applications when applying to professional graduate programs. While Iowa State does offer courses such as “Careers in Natural Resources,” “Workshop in Animal Science,” and “Career Preparation in Animal Science,” there aren’t currently any courses that focus specifically on the veterinary field. Adding a Pre-veterinary major option would make Iowa State University a more well-rounded institution. By starting small, Iowa State University can implement classes that teach essential skills needed to be admitted into the College of Veterinary Medicine. Furthermore, implementing this major would create courses that enhance student skills beyond academics and GPA.

Conclusions and Recommendations

In this report, the primary focus was the proposal of a new Pre-veterinary major program at Iowa State University. Throughout the research conducted on Student Interest, Employability and Growth, and University Benefits and Post-Graduate Preparation, our team has come to the following conclusions. First, out of 45 survey respondents, 21 responded that they would be interested in this new major program. This statistic represents 47% of the findings, even though Animal Science undergraduates weren't surveyed, and the program wasn't thoroughly developed. Next, it was found that there is a growing demand for veterinarians and numerous projected openings, supporting this major's implementation. Lastly, a dedicated Pre-veterinary major could bring more students to the university while helping them prepare for graduate school. Therefore, it is recommended that Iowa State University add a Pre-veterinary major option. As displayed below, we have developed two significant recommendations to begin this process.

1. Implement Specific Veterinary Medicine/Science Courses

Based on the results of our survey and the level of interest from students, creating more undergraduate courses specializing in veterinary medicine/science would be beneficial. This process would begin by adding three new courses to the university's offerings. Two of these courses would focus on introducing concepts and animals that veterinarians encounter daily. One example of this would be animal bedside manner. The last course would focus on developing a "Careers in Veterinary Science" course similar to the one offered by the University of Arizona. This course would focus on hands-on experience with animals, interpersonal skills, and knowledge of the field beyond veterinary school. This class would also focus on veterinary specializations such as small animal, large animal, military, and zoo.

2. Increase Graduate Resource Awareness for Students

The second recommendation is to increase graduate resource awareness. This can be done by increasing awareness of the high demand for veterinarians through a student informational meeting conducted once every semester. If students know about the employability of the field, they will be more likely to choose a career and major in this area. Next, it would be beneficial to create awareness of the difficulty of veterinary school admissions. As discussed above, the limited number of veterinary institutions and rigorous admissions process can be intimidating. We recommend that the university develop a multiple-session seminar that reviews student applications, informs students of graduate school admitted statistics, and recommends resume-building activities.

Appendix

Link to Pre-veterinary Major Survey:

https://iastate.qualtrics.com/jfe/form/SV_b3gywmKalT9dajs

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