

Emma A. Simmons

Personal Biography and Goals

I wanted to write this personal biography because my transcript and resume only show part of who I am. If you look at these records, you will see that I am a very good student with a 4.0 GPA, that I'm interested in biomedical engineering and veterinary medicine, that I have a provisional patent, and that I have a dozen first-place STEM competition wins. But this information only describes the accomplishments. The goal of this personal biography is to explain the passion behind them and how I want to use them.

Background — Personal, School, and Family

I am 17-years-old and in 12th grade. I live in a small town in south-central Pennsylvania with my parents, twin sister, friends nearby, and an assortment of animals. I attended an excellent private elementary and middle school that emphasized academics and personal responsibility. But finding the right high school was difficult. The local school did not offer the level of challenge or facilities I wanted, and the nearest private school was an hour away. We sat down as a family to decide what my sister and I should do. And my parents offered homeschooling as an option. They both have PhDs and work in education. My sister and I agreed. And homeschooling has been a wonderful experience. My parents have been very supportive and have been generous with their time and resources.

In addition to my parents teaching us, last year, in 11th grade, I began taking some classes at Mount St. Mary's University, which is near where we live and where my father works. This combination has helped ensure a well-rounded and challenging education, with the flexibility to focus on subjects that are of particular interest to me, such as science and engineering, as well as music and art. In addition to a strong academic focus, my homeschool education has also included an emphasis on community service.

Academic and Career Goals

Looking ahead to college, I've been thinking about how to bring together the things I care about most: science, engineering, animals, and responsibility to others. For me, veterinary medicine is the best way to integrate these interests. I am especially interested in specializing in equine medicine and research, with its unique challenges of caring for large animals with complex behaviors and physical needs, as well as the practical considerations of working outside a traditional veterinary clinic setting.

I have already started exploring biology, animal behavior, and veterinary medicine. I currently work part-time at a veterinary clinic, where I help with many of the routine tasks that keep a practice functioning. My work includes preparing and cleaning examination and treatment areas, helping with animal handling and restraint, caring for animals, maintaining supplies, and assisting staff as needed during the day. I have also had opportunities to observe examinations, diagnostic procedures, dental care, wound treatment, and surgeries, including the preparation and post-operative monitoring that surround a procedure. Working in a clinic has shown me that veterinary medicine requires much more than scientific knowledge. It depends on careful observation, teamwork, communication with clients, organization, compassion, and the ability to remain calm when an animal is frightened, injured, or ill.

I also attended a pre-veterinary summer program at Purdue University sponsored by Purdue's College of Veterinary Medicine, which is well known for its equine specialization. That experience gave me a broader view of veterinary education and the range of careers within the profession. It reinforced my goal of pursuing biology and eventually veterinary school and helped me see how clinical medicine and research can work well together. I am particularly interested in a future where I can treat animals directly while also contributing to the development of better medical devices and prosthetic technologies through biomedical engineering.

My interest in biomedical engineering began with a horse with asthma. My sister and I rode at a stable that had a horse that had been diagnosed with asthma. The owner was frequently out of town, which meant that he did not always know when the horse had an asthma attack. So my sister and I developed a way to monitor a horse's respiration and have the information sent remotely to the owner. The device used electrically conductive fabric to measure and record a horse's chest expansion. This data was sent to an electronic device that we designed and coded to translate and record the data from the fabric. The information could then be sent remotely to the owner using Internet of Things (IoT) technology through a mobile phone. We tested the prototype several times and found it to be reliable and accurate. We are now in the process of filing a patent for this device.

This is only one of several biomedical prototypes that my sister and I have developed. The most recent one measures several key vital signs in humans, again using electrically conductive fabric. We conducted two sets of human trials with this prototype at Mount St. Mary's University under the supervision of a faculty member and after receiving approval from the university's institutional review board. We currently have a provisional patent for this prototype.

Projects like these have convinced me that my strongest academic path to veterinary medicine and research is one that combines biological science with biomedical engineering.

Service and Community

The experiences that have shaped my academic goals have also shaped how I think about other parts of my life and the things I choose to do. Whether I am designing a medical device, caring for an animal, or studying a scientific problem, I am motivated by the same question: how can I use what I learn to make a positive difference? Over time, I have realized that service is not limited to one type of activity or one profession. It can involve advancing medicine and technology, caring for living things, helping a community solve problems, or simply bringing people together. This understanding has influenced not only what I want to study, but also how I choose to become involved in my community.

About a year ago, I heard about a Pennsylvania program that encourages young people to become involved in local government. I applied through my local borough council and was chosen to serve as one of two junior council members. This is a non-voting position, and my primary role is to advise the council on issues that affect young people and to bring a youth perspective to local government. I attend public meetings, learn about municipal issues, and work on projects designed to make the community safer and more welcoming for younger residents.

Serving on the council has been an important experience for me. It has shown me that public service often happens in practical, everyday ways. It means listening to people, understanding a problem, doing the research, proposing a solution, and then following through.

I also spend time singing with a community chorus. My twin sister sings with the group too, and we often perform duets together. I enjoy singing with people who are mostly older than I am because they have been very encouraging and supportive. From them, I have learned that music is not only beautiful to hear; it is also a way to bring people together. People of different backgrounds, ages, and experiences gather to share the music our chorus performs. I have realized that while music may not solve the same kinds of problems that local government or medicine can, it can strengthen a community and create a sense of belonging.

Whether I am sitting at a council meeting, singing in a community concert, working in a veterinary clinic, or developing a biomedical prototype, I am drawn to work that has a useful purpose. These experiences have taught me that service can take many forms. When I go to college, I plan to continue these kinds of commitments. They are enjoyable, but more importantly, they help me grow while giving me opportunities to contribute to the lives of others.

Summary

When I think about the experiences that have shaped me most, they may seem very different at first: homeschooling in rural Pennsylvania, taking university classes, caring for animals in a veterinary clinic, building biomedical prototypes, serving on a local council, and singing in a community chorus. To me, however, they are connected by the same basic idea. I like learning deeply, solving practical problems, and using what I learn to help others.

I hope college will give me the scientific foundation, research opportunities, mentors, and community I need to keep developing my interests. My goal is to become an equine veterinarian who can care for animals in the clinic or field while also contributing new ideas through research and biomedical design. I know that path will require years of difficult study, experimentation, and persistence, and that is exactly what makes it exciting to me.