STATEMENT OF PURPOSE SAMPLE

As a child, I poured over my mathematics textbooks the way others read novels. I looked up to the mysterious individuals who were responsible for the ideas in those textbooks, and wished to one day make such a great contribution myself. For a child like me, it was the greatest honor I could imagine to participate in such progress. Driven by my curiosity and this dream, I explored the world of mathematics with great vigor throughout my youth.

Before entering university, I took part in mathematics competitions, which focused on students' abilities to accurately and creatively solve problems in a short time. Through such efforts, my gifts in the field earned me the highest grade on my school's tests, as well as the opportunity to attend summer camp at Cornell University. I enjoyed discussing math problems with my friends and teachers, exchanging ideas and acquiring new insights. To me, math was a useful and fascinating tool to solve problems, such as calculating numbers or finding a key. However, at a certain point, I was no longer satisfied by solving difficult problems; it seemed to be monotonous, since I was always able to find the answer. I paid a price for my arrogance in my freshman year, learning that no one can achieve their goals without hard effort in a brutal way.

Fortunately, math has always remained fascinating to me. I was amazed to learn that math could predict the future, as an accurate math model contains everything. This new perspective on the discipline led me to realize that I could eventually contribute to a better life through math. At this point, my interest changed from solving equations to setting up models.

Of the many fields of math, I am most interested in ordinary differential equations and dynamical systems. I have taken many courses related to these areas and learned many interesting theories, such as bifurcation, chaos, and nonlinear systems. Meanwhile, my dedication earned me good grades in these courses. As I studied more deeply, I realized that a concept that might seem simple always contains recondite knowledge, requiring deep contemplation. For instance, Professor XXX found that a point with period three implies chaos for a continuous function. I was so interested in this idea due to its simultaneous simplicity and complexity. My current project, which relates to the central manifold theorem in a finite dimension, reflects a similar

property. I tried to prove its validity in a finite dimension while preserving a system's properties in a reduced lower dimension. This then allows for predicting what happens in a higher dimension, just by considering what you can deduce in a lower dimension.

Without a doubt, dynamical systems are powerful and useful. As an undergraduate, I learned that my strong mathematics foundation can support me to do further research on such applications. In graduate school, I plan to continue my study on this topic to facilitate my knowledge and prepare me for independent research in a Ph.D. program. Dynamical systems are deeply related to nature, and are thus more realistic than a representation of a math model. Therefore, after I eventually complete my Ph.D. program, I would like to serve as a researcher in this area. Through studying in Maryland, I look forward to determining the exact course of my future research. In particular, I am interested in Professor XXX papers on medical and physical models, which would be a wonderful starting point from which to consider my future research path.