To whom it may concern,

I wish to apply for the Assistant Professor position you advertised.

I currently hold an interdisciplinary position in Mathematical Epidemiology in the department of Mathematics and the department of Pathobiology at the University of Illinois at Urbana-Champaign. Our lab studies infectious diseases and I am the group's mathematical modeler. I am responsible for constructing and analyzing theoretical models, handling large datasets and coordinating field teams. I have been specifically working on modeling various aspects of HIV, West Nile virus, malaria, schistosomiasis, Chagas' disease and avian influenza and have experience writing grants and interacting with scientists.

RESEARCH

My research has focused on the application of mathematics to infectious diseases and industrial problems. I have found the collaboration with medical specialists, veterinary scientists, biologists, as well as other mathematicians, to be extremely rewarding. My rigorous training in both pure and applied mathematics, as well as my exceptional communications skills, have stood me in good stead for these interactions.

I recently completed a postdoctoral position in the department of biomathematics at UCLA, with Dr. Sally Blower, an internationally renowned biomathematical epidemiologist. Previously, I completed a postdoctoral position in the department of Applied Mathematics at the University of Western Ontario, Canada. For my Ph.D. thesis, I investigated self-cycling fermentation, a computer-aided biological process that has applications to sewage treatment systems, toxic waste cleanup and analysis of cell growth. My work in these areas has involved both analytical and numerical approaches, especially the use of impulsive differential equations.

My work has already begun to have a significant impact on the field. My mathematical results in self-cycling fermentation inspired researchers at McGill University to implement the methods suggested by my work and have since been followed up in a Master's thesis, with ongoing PhD work. My paper on bone remodeling was one of the first to present a nontrivial mathematical model of osteoclast and osteoblast interactions and has already resulted in five academic citations. My application of impulsive differential equations to HIV immunology was used as the "gold standard" against which numerical simulations were measured in a paper on Monte Carlo estimates of HIV variation. My work on potential HIV vaccines has resulted in three academic citations, including one by Alan Perelson, a leader in the field and has been discussed in the 2005 International AIDS Vaccine Initiative policy report. In addition, my papers have been featured in news articles (in Virus Weekly), a variety of websites (including the Medical Advocates Sexworker Infectious Disease prevention webpage), complete with editorial commentary by a medical doctor (on the Women, Children and HIV webpage) and cited in the Harvard Health Policy Review.

TEACHING

I am dedicated to and strive for excellence in my teaching. I applied for and was successfully awarded a teaching position for the final summer of my Ph.D., an opportunity rarely accorded to graduate students at McMaster University. I voluntarily took education courses as part of my degree, in order to become a more effective teacher. During my previous postdoctoral fellowship, I successfully taught a variety of second and third year courses in differential equations. In my current position at the University of Illinois at Urbana-Champaign, I have a joint appointment between the Department of Mathematics and the College of Veterinary Medicine, where I have taught pre-calculus and am currently teaching a graduate seminar in mathematical epidemiology. I recently had the opportunity to design and teach a five-day workshop on mathematical modeling for biologists in Argentina, for which I also wrote a course manual. Additionally, I have mentored undergraduate and graduate students in applied mathematics, which I have found extremely rewarding.

Thank you for your consideration.

Yours sincerely,

Robert Smith