

ALEXANDER J. CAPALDI

July 1, 2010

Personal Information

Date of Birth - 8/27/1982
Citizenship - United States

Education

Ph.D., Applied Mathematics, minor Statistics, North Carolina State University, 2010
M.S., Applied Mathematics, North Carolina State University, 2008
M.O.R., Operations Research, North Carolina State University, 2006
B.S., Applied Mathematics, Ferris State University, 2004
B.A., Chemistry, Ferris State University, 2004

Professional Experience

2010 - Present	Assistant Professor of Mathematics, Valparaiso University, Valparaiso, IN
2006 - Present	Independently Contracted Programmer, Simutronics Corporation, St. Louis, MO
2005 - 2010	Course Instructor, North Carolina State University, Raleigh, NC
2006, 2007, 2009	Summer REU Mentor, North Carolina State University, Raleigh, NC
2008	Research Assistant, North Carolina State University, Raleigh, NC
2004 - 2005	Lecture Assistant, North Carolina State University, Raleigh, NC
2003	Structured Learning Assistance Instructor, Ferris State University, Big Rapid, MI

Awards and Honors

2010-11 Project NExT Fellow
2008-09 Preparing the Professoriate (PTP) Program Participant and Scholarship (NCSU)
2007 University Outstanding Teaching Assistant Award (NCSU)
2004 Dean's Fellowship (from College of Engineering at NCSU)

Research Interests

Mathematical modeling in biology, epidemic models, using differential equation and stochastic models, parameter estimation, uncertainty quantification, subset selection, and model selection.

Professional Memberships

American Mathematical Society
Society for Mathematical Biology
Society for Industrial and Applied Mathematics

Papers (Refereed Journals)

- A. Cintron-Arias, H. T. Banks, A. Capaldi, and A. L. Lloyd, *A Sensitivity Matrix Methodology for Inverse Problem Formulation*, Journal of Inverse and Ill-Posed Problems **17** (2009), 1-20.

Technical Reports

- A. Capaldi, S. Behrend, B. Berman, J. Smith, J. Wright and A. L. Lloyd, *Parameter Estimation and Uncertainty Quantification for an Epidemic Model*, Center for Research in Scientific Computation Technical Report, **CRSC-TR09-18**, North Carolina State University, August 2009, 34 pages. Submitted for publication to Mathematical Biosciences and Engineering.

Conference and Workshop Presentations

- "Parameter Estimation and Uncertainty Quantification for an Epidemic Model", AMS Special Session on Biomathematics: Modeling in Biology, Ecology and Epidemiology, Joint Mathematics Meetings, San Francisco, CA, January 13-16, 2010.

- CTW: Computational Challenges in Integrative Biological Modeling, Mathematical Biosciences Institute, The Ohio State University, October 5-9 2009. Poster Presentation.
- “Uncertainty Quantification for Epidemiological Parameter Estimation,” Mathematical Biosciences Institute Workshop for Young Researchers in Mathematical Biology, The Ohio State University, September 2 2008.

Colloquia

- “Subset Selection in the Context of Epidemic Models,” Applied Mathematics Graduate Student Seminar, North Carolina State University, October 19 2009.
- “Making the Most of Your PTP Experience,” Preparing the Professoriate seminar, North Carolina State University, September 8 2009.
- “Parameter Estimation for Epidemic Models: Dependence of Uncertainty on Sampling, and Parameter Identifiability,” Applied Mathematics Graduate Student Seminar, North Carolina State University, November 24 2008.
- “Parameter Estimation and Uncertainty Quantification for an Epidemic Model,” Applied Mathematics Graduate Student Seminar, North Carolina State University, March 24 2008.
- “Evaluating Antiviral Strategies for Limiting the Prevalence of Avian Influenza,” Applied Mathematics Graduate Student Seminar, North Carolina State University, October 16 2006.

Professional Conferences Attended

- Atlantic Coast Symposium On the Mathematical Sciences in Biology and Biomedicine, North Carolina State University, April 24-26, 2008.
- Joint SIAM-SMB Conference on the Life Sciences, Raleigh, North Carolina, July 31-August 4, 2006.

Service

2007 - 2008 Treasurer, NCSU University Graduate Student Association
 2005 - 2008 Representative, NCSU University Graduate Student Association
 2005 - 2006 Vice Pres., Institute for Operations Research and the Management Sciences NCSU Student Chapter