

FELICIA MARIA G. MAGPANTAY

OFFICE ADDRESS

410 Jeffery Hall
Department of Mathematics and Statistics
48 University Avenue
Kingston, ON
Canada K7L 3N6

CONTACT INFORMATION

Phone: 613-533-2402
Email: felicia [dot] magpantay [at] queensu [dot] ca
Webpage: <http://www.mast.queensu.ca/~magpantay>

EDUCATION

Ph.D. Applied Mathematics Sept. 2008–Dec. 2011, Granted Feb. 2012
McGill University, Montréal, QC, Canada

Thesis: *On the stability and numerical stability of a model state dependent delay differential equation*

Awards: Pelletier Fellowship for the best thesis in the Dept. of Mathematics and Statistics

M.Sc. Applied Mathematics Sept. 2007–Aug. 2008
University of Western Ontario, London, ON, Canada

Project: *Travelling wave solutions to the post-synaptic wave potential equation with axonal and feedback connections*

Honours B.Sc. Joint Physics and Mathematics Sept. 2004–May 2007
Trent University, Peterborough, ON, Canada

Awards: President's Honour Roll, Herzberg Research Award, Trent International Scholarship

RESEARCH INTERESTS

Differential equations (ODE, DDEs, PDEs and SDEs), statistical inference methods, mathematical biology, theoretical and applied dynamical systems, state-dependent delay differential equations, Lyapunov-Razumikhin theory, numerical analysis, scientific computing, mathematical modeling

ACADEMIC POSITIONS

Assistant Professor July 2017–present
Department of Mathematics and Statistics, Queen's University, Kingston, ON, Canada

Assistant Professor Aug. 2015–June 2017
Department of Mathematics, University of Manitoba, Winnipeg, MB, Canada

Postdoctoral fellow Aug. 2013–July 2015
Rohani and King Labs, University of Michigan, Ann Arbor, MI, USA

Postdoctoral fellow Feb. 2012–July 2013
Department of Mathematics and Statistics, York University, Toronto, ON, Canada

RESEARCH GRANTS

- 2017–2019 Queen's University Research Initiation Grant (\$20,000)
Role: Principal Investigator. Status: Active
- 2016–2021 NSERC Discovery Grant (initial grant of \$29,000/year increased to \$33,000/year \times 5 years)
Role: Principal Investigator. Status: Active
- 2015–2017 University of Manitoba Startup Grant (\$50,000)
Role: Principal Investigator. Status: Completed

JOURNAL ARTICLES

1. **F.M.G. Magpantay** and A.R. Humphries (2018) Generalised Lyapunov-Razumikhin techniques for scalar state-dependent delay differential equations. *Discrete Contin. Dyn. Syst. - S.* (accepted)
2. M. Domenech de Cellès, **F.M.G. Magpantay**, A.A. King and P. Rohani (2018) Waning vaccinal immunity, the end of the honeymoon, and pertussis resurgence. *Sci. Transl. Med.* 10(434)
3. **F.M.G. Magpantay** (2017) Vaccine impact in homogeneous and age-structured models. *J. Math. Biol.* 75 (6-7): 1591-1617
4. M. Domenech de Cellès, **F.M.G. Magpantay**, A.A. King and P. Rohani (2016) The pertussis enigma: Reconciling epidemiology, immunology and evolution. *Proc. Roy. Soc. B.* 283(1822): 20152309
5. **F.M.G. Magpantay**, M. Domenech de Cellès, P. Rohani and A.A. King (2016) Pertussis immunity and epidemiology: mode and duration of vaccine-induced immunity. *Parasitology (Special Issue on Modeling Infectious Diseases)* 143: pp. 835-849
6. R. Judson, **F.M.G. Magpantay** and 17 more authors (2015) Integrated model of chemical perturbations of a biological pathway using 18 *in vitro* high throughput screening assays for the estrogen receptor. *Toxicological Sciences* 148(1): pp. 137-154
7. A.A. King, M. Domenech de Cellès, **F.M.G. Magpantay** and P. Rohani (2015) Avoidable errors in the modeling of outbreaks of emerging pathogens, with special reference to Ebola. *Proc. Roy. Soc. B.* 282(1806)
8. **F.M.G. Magpantay** and P. Rohani (2014) Dynamics of Pertussis Transmission in the United States. *Am. J. Epidemiol.* 181(12): pp. 921-931
9. D. Munther, Y. Luo, J. Wu, **F.M.G. Magpantay** and P. Srinivasan (2015) A mathematical model for pathogen cross-contamination dynamics during produce wash. *Food Microbiology* 51: pp. 101-107
10. X. Wu, **F.M.G. Magpantay**, J. Wu and X. Zou (2014) Stage-structured population systems with temporally periodic delay. *Math. Method. Appl. Sci.* 38(16): pp. 3464-3481
11. **F.M.G. Magpantay**, M.A. Riolo, M. Domenech de Cellès, A.A. King and P. Rohani (2014) Epidemiological consequences of imperfect vaccines for immunizing infections. *SIAM J. Appl. Math* 74(6): pp. 1810-1830
12. **F.M.G. Magpantay**, N. Kosovalić and J. Wu (2014) An age-structured population model with state-dependent delay: derivation and numerical integration. *SIAM J. Numer. Anal.* 52(2), pp. 735-756
13. N. Kosovalić, **F.M.G. Magpantay**, Y. Chen and J. Wu (2013) Abstract algebraic-delay differential systems and age structured population dynamics. *J. Differential Equations* 255(3) pp. 593-609
14. A.R. Humphries, O. DeMasi, **F.M.G. Magpantay** and F. Upham (2012) Dynamics of a delay differential equation with multiple state dependent delays. *Discrete Contin. Dyn. Syst. - A* 32(8): pp. 2701-2727
15. **F.M.G. Magpantay** and X. Zou (2010) Wave front in neuronal fields with nonlocal post-synaptic axonal connections and delayed nonlocal feedback connections. *Math. Biosci. Eng.* 7(2): pp. 421-442
16. **F. Magpantay** and K. Abdella (2008) A two species model for a fishing system with marine protected areas. *WASET Int. J. of Chem. and Biol. Eng.* 1(4): 171-180
17. K. Abdella and **F. Magpantay** (2007) Approximate analytic solutions for mixed and forced convection heat transfer from an unsteady and non-uniform flow past a rotating cylinder. *WSEAS trans. on heat and mass transfer* 2: 6-16

JOURNAL ARTICLES UNDER REVISION OR REVIEW

1. A.R. Humphries and **F.M.G. Magpantay**. Lyapunov-Razumikhin techniques for state-dependent delay differential equations. (<https://arxiv.org/abs/1507.00141>)
2. J.A. Collera and **F.M.G. Magpantay**. Dynamics of a stage-structured intraguild predation model

CONFERENCE PAPERS

1. **F.M.G. Magpantay** and N. Kosovalić. An age-structured population model with state-dependent delay: Dynamics. *12th IFAC Workshop on Time Delay Systems*

LETTERS

1. M. Domenech de Cellès, M. Riolo, **F.M.G. Magpantay**, P. Rohani and A.A. King (2014) Letter: Acellular pertussis vaccines and herd immunity: the epidemiological evidence. *Proc. Natl. Acad. Sci.* 111(7): pp. E716-E717

GRADUATE STUDENTS SUPERVISION

1. Ankai Liu
Ph.D. Mathematics and Statistics student, Queen's University (starting Sept. 2018)
2. Nazila Akhavan
M.Sc. Mathematics and Statistics student, Queen's University (Sept. 2016–present, continuing on to Ph.D.)
3. Clifford Allotey
M.Sc. Mathematics, University of Manitoba (2017)
Current position: Sessional Instructor, Dept. of Mathematics, University of Manitoba.

POSTGRADUATE SUPERVISION AND VISITING SCHOLARS

1. Ling Xue
PIMS Postdoctoral Fellow (Jan. 2017 – Dec. 2017), University of Manitoba
Current position: Faculty, Dept. of Mathematics, Harbin Engineering University.
2. Juancho Collera
Abel Visiting Scholar (Oct. 2016 – Dec. 2016), University of Manitoba
Current position: Faculty, Dept. of Mathematics and Computer Science, University of the Philippines Baguio.

CONFERENCE PRESENTATIONS AND SEMINARS

1. 2018 American Institute of Mathematical Sciences Conference on Dynamical Systems, Differential Equations and Applications, National Taiwan University, Taipei, Taiwan
2. 2018 BioMath Days, University of Ottawa, ON, Canada
3. 2018 Workshop on Infectious Disease Epidemiology: From Theoretical Models to Inference, Banach Center, Warsaw, Poland
4. 2018 CAMBAM Seminar (Jan. 25, 2018), McGill University, Montréal, QC, Canada
5. 2017 XI Americas Conference on Differential Equations and Nonlinear Analysis, University of Alberta, Edmonton, AB, Canada
6. 2017 Colloquium (July 28, 2017), University of the Philippines Baguio, Baguio, Philippines
7. 2017 China-Canada International Conference on Disease Modelling, Shanghai University, Shanghai, China
8. 2017 SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA
9. 2016 International Conference on Patterns of Dynamics, Freie Universität Berlin, Germany
10. 2016 Seminar (July 19, 2016) Institut Pasteur, Paris, France
11. 2016 SIAM Life Sciences Conference, Boston, MA, USA
12. 2015 12th IFAC Workshop on Time Delay Systems, Ann Arbor, MI, USA
13. 2015 Mathematical Biology III session, Joint Mathematics Meetings, San Antonio, TX, USA
14. 2014 Canadian Mathematical Society Winter Meeting, Hamilton, ON, Canada
15. 2014 IIMAS seminar (Aug. 27, 2014), Universidad Nacional Autónoma de México, D.F., Mexico
16. 2013 Applied Mathematics seminar (Sept. 20, 2013), University of Western Ontario, London, ON, Canada
17. 2013 CAIMS Annual Meeting, Château Laurier, Québec City, QC, Canada
18. 2013 Montréal Scientific Computing Days, Université de Montréal, Montréal, QC, Canada
19. 2013 SHARCNet Scientific Computing Seminar (March 7, 2013), University of Ontario Institute of Technology, Oshawa, ON, Canada
20. 2013 Numerical Analysis Seminar (June 4, 2013), Università degli Studi di Trieste, Trieste, Italy
21. 2013 SIAM Conference on Dynamical Systems, Snowbird, UT, USA
22. 2013 Biomathematics Seminar (Feb. 7, 2013), Ryerson University, Toronto, ON, Canada
23. 2013 Incubation Day, York University, Toronto, ON, Canada
24. 2012 CMS Winter Meeting, Montréal, QC, Canada
25. 2012 CAIMS Annual Meeting, Fields Institute, Toronto, ON, Canada
26. 2012 CDM Weekly Meeting (Oct. 24, 2012), York University, Toronto, ON, Canada
27. 2012 CAIMS Annual Meeting, Fields Institute, Toronto, ON, Canada

28. 2012 Numerical Analysis Seminar (June 12, 2012), University of Oxford, Oxford, UK
29. 2012 Recent Trends in Delay Differential Equations, Cortona, Italy
30. 2012 CDM Weekly Meeting (March 14, 2012), York University, Toronto, ON, Canada
31. 2011 International Congress in Industrial and Applied Mathematics, Vancouver, BC, Canada
32. 2009 International Workshop on State Dependent Delay Equations, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany
33. 2009 CAIMS Annual Meeting, University of Western Ontario, London, ON, Canada

OTHER CONFERENCES, WORKSHOPS AND SUMMER SCHOOLS ATTENDED

1. MBI Workshop on Socioepidemiology (March 5–9, 2018)
The Ohio State University, Columbus, OH, USA
2. Mathematics Inspired by Immuno-Epidemiology (Aug. 24–28, 2015)
American Institute of Mathematics, San Jose, CA, USA
3. EWM Mathematical Theories Toward Environmental Models (May 27–June 1, 2013)
International Centre for Theoretical Physics, Trieste, Italy
4. Conference on Dynamics of Differential Equations (March 16–20, 2013)
Georgia Institute of Technology, Atlanta, GA, USA
5. Modeling Problems Related to our Environment (Jan. 14–18, 2013)
American Institute of Mathematics, Palo Alto, CA, USA
6. Monte Carlo Methods in the Physical and Biological Sciences (Oct. 29–Nov. 2, 2012)
ICERM workshop, Brown University, Providence, RI, USA
7. Current Challenges in Stability Issues for Numerical Differential Equations
CIME-EMS Summer School in Applied Mathematics (June 27–July 2, 2011), Cetraro, Italy

TEACHING

1. Fall 2018: MTHE/STAT 351 (Probability I), MATH 455/855 (Stochastic Processes)
2. Winter 2018: None
3. Fall 2017: MATH 121 (Calculus), MTHE/STAT 351 (Probability I)
4. Winter 2017 (University of Manitoba): MATH 1300 (Vector Geometry and Linear Algebra)
5. Fall 2016 (University of Manitoba): MATH 3440 (Ordinary Differential Equations), MATH 1500 (Calculus)
6. Winter 2016 (University of Manitoba): None
7. Fall 2015 (University of Manitoba): MATH 3440 (Ordinary Differential Equations), MATH 1500 (Calculus)

COURSE DEVELOPMENT

1. Fall 2015 (University of Manitoba): MATH 3440 (Ordinary Differential Equations)

ACADEMIC SERVICE

1. Reviewer
 - 2018: Journal of Nonlinear Science, Mathematical Biosciences and Engineering, Differential Equations and Dynamical Systems
 - 2017: Discrete and Continuous Dynamical Systems B, Journal of Theoretical Biology (x2), Mathematical Biosciences (x2), Journal of Mathematical Biology
 - 2016: Journal of Nonlinear Science, Journal of Theoretical Biology, Mathematical and Computer Modeling of Dynamical Systems
 - 2015: BMC Infectious Diseases, Bulletin of Mathematical Biology, Communications in Nonlinear Science and Numerical Simulation, Journal of Computational and Applied Mathematics, Mathematical Biosciences and Engineering, Mathematical Biosciences, SIAM Journal on Applied Mathematics
 - 2014: SIAM Journal on Applied Mathematics
 - 2013: Advances in Difference Equations, Mathematical Biosciences and Engineering
2. Thesis Examining Committee

2017: Bo Min (M.Sc. Statistics, University of Manitoba)

2016: Jason Rose (M.Sc. Mathematics, University of Manitoba)

Mahnaz Alavinejad (M.Sc. Mathematics, University of Manitoba)

3. Queen's University Major Admission Awards Reader (2018)
4. Queen's University Committees: Postdoc Committee (2017-present), Graduate Committee (2017-present)
5. University of Manitoba Committees: Social Committee (2016-2017)
6. Internal Expert, University of Manitoba NSERC Internal Review Panel
Winnipeg, MB, Canada (Oct. 2016)
7. Chair of Mathematical Biology III session, Joint Mathematics Meetings
San Antonio, TX, USA (Jan. 11, 2015)
8. Coordinator for the Infinite Dimensional Dynamical Systems Seminars
York University, Toronto, ON, Canada (Jan. 2013–May 2013)
9. Coordinator for the Centre for Disease Modeling weekly meetings
York University, Toronto, ON, Canada (Feb. 2013–May 2013)

ACADEMIC AWARDS

1. Association for Women in Mathematics Travel Grant (2015)
2. Best Presentation Award at the Montreal Scientific Computing Days (2013)
3. McGill University Alexis and Charles Pelletier Fellowship (2012)
4. Institut des Sciences Mathématiques Scholarship (2009-2011)
5. McGill University Molson and Hilton Hart Fellowship (2010)
6. McGill University Honourable Mention for the Teaching Assistant Award (2009)
7. McGill University Lorne Trottier Science Accelerator Scholarship (2008)
8. Trent University Herzberg Research Award (2007)
9. Top 10% Standing in the Putnam Competition (2006)
10. Trent University Lodge Physics Scholarship (2005)
11. Trent International Tuition Scholarship and Award (2004–2007)
12. University of the Philippines Oblation Scholarship (2003)

OUTREACH AND VOLUNTEER ACTIVITIES

1. Volunteer Category Judge at the Frontenac, Lennox and Addington Science Fair (2018)
2. Public Presentation at the University of Manitoba Faculty of Science Homecoming Luncheon (2016)
3. Women in Science, an event for high school girls held at the Manitoba Legislative Building (2015)