

Alastair David Jamieson-Lane

Curriculum Vitae

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Educational Background

2014
2019

PhD Mathematics, *Department of Mathematics, Institute of Applied Mathematics-University of British Columbia* (hereafter DoM-UBC), Vancouver, Canada.

2012
2014

MSc Mathematics, *DoM-UBC*, Vancouver, Canada.

2008
2011

BSc(Hons) Mathematics, *Department of Mathematics and Statistics - University of Canterbury* (hereafter DoMS-UC), Christchurch, New Zealand.

Theses

PhD Thesis

TITLE Deterministic And Stochastic Modeling Of The Min System For Cell Division
ADVISOR Eric Cytrnbaum

MSc Thesis

TITLE In Which The Fixation Probability Of A Superstar Is Determined And A Contradiction In The Literature Is Addressed
ADVISOR Christoph Hauert.

Honours project

TITLE Stochastic Effects in Possum Population Modeling
ADVISOR Alex James

Research Projects and Collaborations

Undergraduate Summer Projects

2010

Metrics and Joining Algorithms for Phylogenetic Trees, *UC*, Christchurch, New Zealand.

2009

The Properties of Elliptic curves containing singularities over the field \mathbb{Z}_p , *UC*, Christchurch, New Zealand.

Research Interests

- MATHEMATICS**
- Mathematical biology - evolutionary dynamics and epidemiology.
 - Mathematical biology - Biochemical systems.
 - Pattern formation.
 - Asymptotic analysis.
 - Dynamical Systems
 - Finding ways in which existing mathematical models don't work as intended (Not exactly a research interest, just something that happens).
 - Collaboration with pretty much any scientific field.
- OTHERS**
- Procedural generation (Stories, games, art, etc)
 - "Social algorithms" sets of rules that shape our society- electoral systems, academic publishing systems, etc.
 - AI safety - in particular the value alignment problem.

Teaching Experience

Lecturer

2016

Math 200- Calc III (Multivariate Calculus), UBC, Vancouver, Canada.
Course Coordinator: Albert Chau

2014

Math 102- Diff. Calc. for Life Scientist, UBC, Vancouver, Canada.
Course Coordinator: Eric Cytrnbaum

2013

Math 100- Diff. Calc. for Physical Scientist and Engineers, UBC, Vancouver, Canada.
Course Coordinator: Keqin Liu

2012

Math 199 - University Calculus and Matrix Algebra for High school students (STAR course), UC, Christchurch, New Zealand.
Course Coordinator: Liz Ackerly

Lab Instructor

2013
2016

Head Lab instructor Math 152, UBC, Vancouver, Canada.
Migrated course to online hand-in, implemented computer assisted marking, rejigged bi-weekly assignments each year.

Outreach Programs

2016

Programming & Mathematics, Acted as a Mentor to precocious child as part of the Vancouver School Board mentorship program, taught R, linear algebra, proofs, and calculus.
Program Organizer: Teresa Milden

2013
2015

Classroom Volunteer, Lord Strathcona Elementary, Provided ambiance, an extra pair of hands, and one-on-one reading or spelling time in a classroom. .
Teacher: Andrea Lyn

Skills

Programming Java, R, Julia, Matlab, \LaTeX , C++, Python

Tools GitHub

Program Version Control and Program Repositories.

Tensorflow, Keras

Python tools, mainly for Neural networks.

Participation In Events

2018

PIMS Workshop on stochastic and deterministic modeling in Biology, *Pacific Institute for the Mathematical Sciences*, Jasper, Canada.

2018

SIAM conference on the life sciences (LS18), *Society for industrial and applied mathematics (SIAM)*, Minneapolis, U.S.A..

2018

BSC2018, *Biophysical Society of Canada*, Vancouver, Canada.

2017

BC Data Science Workshop, *UBC/SFU*, Vancouver, Canada.

2017

Frontiers in biophysics, *UBC/SFU*, Vancouver, Canada.

2013

Complex System Summer School, *Santa Fe Institute*, Santa Fe, U.S.A..

Event Organization and Other Organizational Roles

2016

2017

IAM Toolbox Series, *UBC*, Vancouver, Canada.

Organized a bi-weekly seminar session where students introduce other students to useful skills or tools. This includes mathematical skills (for example Wavelets), computational skills (accessing WestGrid and running programs on the cloud), or Academic tools (Citation alerts, Overleaf, bibliography tools)

2013

2014

Institute of Applied Mathematics Student Committee, *UBC*, Vancouver, Canada.

Was a member of a student committee organizing the annual "IAM retreat" (mini-conference), and helping to settle incoming grad students, and improve facilities in the Institute of Applied mathematics.

Other Certificates

Teaching

24 hour Instructional Skills Workshop

University of British Columbia

Center for Teaching and Learning

Publications

2019

Timing and Shape of Stochastic Autocatalytic Burst Formation, *A. Jamieson-Lane & E. Cytrnbaum. Chaos*, 2019..

2017

AnthroTools: An R Package for Cross-Cultural Ethnographic Data Analysis, *B.G. Purzycki & A. Jamieson-Lane, Cross-Cultural Research*, 2017.

2015

Localized Spot Patterns on the Sphere for Reaction-Diffusion Systems: Theory and Open Problems, *A. Jamieson-Lane, P. Trinh & M. Ward (Conference Proceedings for CAIMS 2015)*.

2015

Fixation Probabilities on Superstars, Revisited and Revised , A. Jamieson-Lane & C.Hauert, *Journal of Theoretical Biology*, 2015.

Papers in Progress

2020

Unbound Growth Predicts Epidemic ArrivalTime on Networks.

2020

Bacteria can't keep secrets.

Some Academic Talks

2018

How Do we Represent Diffusion in SPDEs?, UBC, PIMS Workshop on stochastic and deterministic modelling in Biology.

2017

Data Processing and Pattern Nucleation for the MinD System, UBC, Mathematical Biology W.I.P. seminar series (November 2017).

2017

Machine Learning, Bottlenecking, and Image Recognition, *Data Science and Advanced Analytics Meetup - Hosted by Technical Safety BC*, A introductory talk for an industry audience on Machine learning, and a recent project conducted for Technical Safety BC.

Public Talks and Less Academic Publications

2018

Neural Networks for Identifying Safe (and Unsafe) Systems , *BC Technical Safety, Core Connections*, Invited speaker at an industry/semi-government organization event explaining Machine learning..

2017

Graduate Student Welcome Guide and Checklist , UBC, A welcome checklist and FAQ for incoming grad students. .

2015

The Benefits and Hazards of Studying Mathematics, *Green College members series*, A public talk discussing where mathematics fits into the wider scientific and social endeavor.

2014

Interdisciplinary Panel: Chaos, *Green College panel series*, A public panel, discussing the importance and representation of chaos in various disciplines..

2014

Markov Models of Social Change (Part 1) , *Azimuth Blog*, A guest blog post detailing some work I collaborated on during the complex system summer school in Santa Fe. .

References

Eric Cytrnbaum

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Michael Jeffrey Ward

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