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*, Christchuch, New Zealand.

2009 **The Properties of Elliptic curves containing singularities over the field Zp**, *UC*, Christchuch, 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**, *Biophyiscal 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

2020 **Calculation of epidemic arrival time distributions using branching processes** , *A. Jamieson-Lane & B. Blasius. Phys. Rev. E, 2020.*.

2020 **Calculation of epidemic arrival time distributions using branching processes** , *A. Jamieson-Lane & B. Blasius. Phys. Rev. E, 2020.*.

2020 **Effects of age-targeted sequestration for COVID-19** , *A. Jamieson-Lane & E. Cytrnbaum. J. Biol. Dyn. , 2020.*.

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.*

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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