
Samuel Johnson

School of Resource and Environmental Management, Simon Fraser University
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Place of birth: Newcastle, Australia *Date of birth:* 25 October 1984
Citizenship: Australian

Education

- 2014 - Present** PhD student, Resource and Environmental Management, Simon Fraser University
Thesis topic: Multispecies Stock Assessment
(*supervisor: Sean Cox*)
- 2010 - 2012** Master of Science in Mathematics, Simon Fraser University
Thesis topic: Asymptotic analysis of walks with small steps in the quarter plane
(*supervisor: Marni Mishna*)
- 2009** Bachelor of Mathematics (Honours), University of Newcastle, Australia
Honours thesis title: Simple groups of automorphisms of locally finite trees.
(*honours supervisor: George Willis*)

Academic Employment

- Sep 2012 - Aug 2014** Graduate Research assistant, Department of Mathematics, Simon Fraser University
(*supervisor: Marni Mishna*)

Awards, Honors and Scholarships

- 2015** MITACS Accelerate Internship with Canadian Sablefish Association, June - November
- 2015** MITACS Accelerate Internship with Canadian Sablefish Association, January - June
- 2014** Fall graduate fellowship, Simon Fraser University
- 2014** Summer graduate fellowship, Simon Fraser University,
- 2014** Research travel grant, Simon Fraser University
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- 2012** Summer graduate fellowship, Simon Fraser University
- 2012** Research travel grant, Simon Fraser University

2009 Honours scholarship, University of Newcastle

2008 Ivan Lincoln Rose Prize in Applied Mathematics, University of Newcastle

2008 Undergraduate summer research scholarship, AMSI

2005 - 2009 ESSUN Commonwealth scholarship, administered by the University of Newcastle

Research

Research Interests

I'm interested in quantitative fisheries stock assessment and statistical learning applications in ecology. My thesis topic is stock assessment for multi species fisheries, with a focus on methods for overcoming data limitations from unequal allocation of scientific resources. Species of lower commercial importance in a multi species fishery are sometimes left without regular assessments due to a lack of available data. By using statistical learning methods, species which co-occur in commercial and scientific fishing effort can be identified and grouped together for assessment. Assessments can then use statistical models which link data either by a form of aggregation or through a joint likelihood and shared penalty modifiers or prior distributions. In this way, species with higher quality data can stabilise results for species with lower quality data.

Publications

Theses

1. Johnson S. Analytic combinatorics of planar lattice paths. Simon Fraser University, 2012, 97 pages.

Articles submitted to refereed journals

2. Johnson S., Mishna M. and Yeats K. Towards a combinatorial understanding of lattice path asymptotics. 2013, 35 pages. Submitted to Combinatorics, Probability and Computing. Available as *arXiv:1305.7418*.

Presentations

Conference Presentations

- Feb 2016** Western Groundfish Conference, Newport Oregon. Talk entitled 'Avoiding Non-Target Species in a Multispecies Fishery'
- Jan 2016** IDEAS, Simon Fraser University. Talk entitled 'Avoiding Non-Target Species in a Multispecies Fishery'
- Jan 2015** IDEAS, Simon Fraser University. Talk entitled 'Near Shore Inlets and Their Contribution to Canadian Sablefish Stocks' given with Michelle Jones

May 2013 Prairie Discrete Math Workshop, Thompson Rivers University. Talk entitled 'Towards a combinatorial understanding of lattice path asymptotics.'

June 2012 CMS Summer Meeting, University of Regina. Talk entitled 'The exponential growth of restricted lattice paths.'

June 2012 CMS Summer Meeting, University of Regina. Poster presentation entitled 'The exponential growth of lattice paths.'

August 2011 Computational Math Day, Simon Fraser University. Poster presentation entitled 'Asymptotic analysis of walks with small steps in the quarter plane.'

May 2011 CanaDAM, University of Victoria. Talk entitled 'Asymptotic analysis of walks with small steps in the quarter plane.' Joint presentation with Steve Melczer.

April 2011 PIMS Young Researcher Conference, University of British Columbia. Talk entitled 'Asymptotic analysis of walks with small steps in the quarter plane.' Joint presentation with Steve Melczer.

Instructional Talks

October 2011 Simon Fraser University. Instructional talk on Multiple Zeta Values, focusing on the algebra of Lyndon words.

May 2011 Simon Fraser University. Series of four one hour long instructional talks on the paper 'Basic analytic combinatorics of directed lattice paths' by Cyril Banderier and Phillipe Faljolet.

Research Seminar Presentations

March 2013 Simon Fraser University Discrete Mathematics Seminar. 'Towards a combinatorial understanding of lattice path asymptotics.'

December 2011 University of Newcastle weekly maths seminar. 'Analytic combinatorics of walks with small steps in the quarter plane.'

November 2011 Simon Fraser Discrete Mathematics Seminar. 'Analytic combinatorics of walks with small steps in the quarter plane.'

Presentations for the general public

June 2013 SFU math camp (Talks and activities for highschool students). Platonic solids and counting symmetries.

Conferences Attended

Spring 2016 19th Western Groundfish Conference (WGC), Newport, Oregon, February 8 - 12, 2016

Fall 2015 Canadian Fisheries Research Network (CFRN) Annual General Meeting, Halifax, Nova Scotia, November 16 - 20 2015

Spring 2014 Symposium on Discrete Algorithms (SODA14) and Analytic Algorithms and Combinatorics (ANALCO14), Hilton Hotel, Portland, Oregon, January 4 - 7 2014

Fall 2013 Combinatorial Potlatch, University of Victoria, BC, Saturday November 23, 2013

Spring 2013 Combinatorial Probability and Statistical Mechanics Workshop, Queen Mary University of London, 21 - 23 February 2013.

Spring 2013 Journées de combinatoire de Bordeaux, LaBri, l'université Bordeaux I, 13 - 15 February 2013.

Coursework

Fall 2014 REM 621, Ecological Economics, Asst. Prof. Jonn Axsen. Grade: A

Fall 2014 REM 614, Advanced Methods in Fisheries Stock Assessment, Assoc. Prof. Sean Cox. Grade: A+

Fall 2014 REM 644, Public Policy Analysis and Administration, Assoc. Prof. Sean Markey. Grade: A

Spring 2015 REM 802, Research Approaches for REM Ph.D. Students, Prof. Ken Lertzman. Grade: A+

Fall 2015 REM 611, Applied Population and Community Ecology, Assoc. Prof. Anne Salomon. Grade: A+

TA Duties

| Semester | Assignment | Hours/week | Duties |
|----------|----------------------------------------------------|------------|------------------------------------------------------------------------------------|
| 2014-1 | Math 190: Principles of Mathematics for Teachers | 12 | Marking, moderation of online discussions. |
| 2013-3 | Math 242: Intro to Analysis | 9 | Preparing and presenting a weekly one hour tutorial, marking. |
| 2013-1 | Math 302: Permutation Puzzles | 6 | Preparing and presenting a weekly one hour tutorial, marking. |
| 2012-3 | Caculus Support | 9 | Preparing and presenting a weekly one hour tutorial for at risk calculus students. |
| 2012-3 | Applied Calculus Workshop | 9 | Workshop hours, marking, moderation of online discussion boards. |
| 2012-1 | Applied Calculus Workshop | 9 | Workshop hours, marking, moderation of online discussion boards. |
| 2012-1 | Caculus Support | 6 | Preparing and presenting a weekly one hour tutorial for at risk calculus students. |
| 2011-3 | MACM316 - Numerical Analysis | 9 | Tutorials, marking. |
| 2011-1 | Algebra Workshop | 6 | Marking. |
| 2011-1 | Math150 - Centre for Online and Distance Education | 9 | Marking, moderation of online discussion boards. |
| 2010-3 | Applied Calculus Workshop | 15 | Workshop hours, marking, moderation of online discussion boards. |

Teaching Activity

| Semester | Course | Number | Institution (blank implies SFU) | # Students |
|----------|-----------------------------------|---------|---------------------------------|------------|
| 2014-3 | Foundations of Analytic Reasoning | FAN X99 | | 12 |
| 2015-1 | Foundations of Analytic Reasoning | FAN X99 | | 12 |
| 2015-3 | Foundations of Analytic Reasoning | FAN X99 | | 12 |
| 2016-1 | Foundations of Analytic Reasoning | FAN X99 | | 12 |

Service to the Academic Community

- **Conference organizing committee**

- 2011 Volunteer, ThinkAgain! cross discipline graduate student conference, Simon Fraser University

- **Student life**

- 2011-2014 Mathematics Graduate Student Caucus President, Simon Fraser University (SFU)
- 2011-2014 Member of the Collective Advocacy and Campaigns Committee of the SFU Graduate Student Society (GSS)
- 2010-2014 Member of the Graduate Student Society Benefit Plan Committee of the SFU GSS

- 2010-2011 GSS council representative for the SFU Department of Mathematics Graduate Student Caucus
- 2005 University of Newcastle Union (UNU) Limited director, Faculty of Engineering, University of Newcastle

FEBRUARY 10, 2016, BURNABY, BC