

John Charles (“J.C.”) Saunders

Contact Information:

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Education

Feb.-Mar. 2021	TOP II (Teaching Online Program II), University of Calgary, Canada
Feb. 2021	TOP I (Teaching Online Program I), University of Calgary, Canada
2013–2018	PhD , Pure Mathematics, University of Waterloo, Canada Thesis: Problems in Combinatorial and Analytic Number Theory Supervisors: Dr. Kevin Hare, Dr. Yu-Ru Liu
2016–2017	Graduate Certificate , Certificate in University Teaching, University of Waterloo, Canada
2011–2013	MMath , Pure Mathematics, University of Waterloo, Canada. Research Paper: Jumping Champions: Most Common Gaps Between Primes Supervisor: Dr. Michael Rubinstein
2007–2011	Bachelor of Science with Honours , Mathematics and Statistics, Philosophy Acadia University, Canada Thesis: Minkowski Dimension and Content of Fractals Supervisor: Dr. Franklin Mendivil

Positions Holding/Held

2022–present	Assistant Professor , Department of Mathematical Sciences, Middle Tennessee State University, Murfreesboro, Tennessee, USA
2020–2022	Postdoctoral Associate , Department of Mathematics and Statistics, University of Calgary, Canada Supervisor: Dr. Dang Khoa Nguyen

Positions Holding/Held Continued

Jan. 2021 –Dec. 2021 May 2022 –June 2022	Sessional Instructor , Department of Mathematics and Statistics, University of Calgary, Canada for Math 249/265 Introductory Calculus: first year introductory calculus course held online via. Desire2Learn and Zoom platforms, and for Math 211 Linear Methods I
2018–2020	Postdoctoral Fellow , Department of Mathematics, Ben-Gurion University of the Negev, Israel Supervisor: Dr. Daniel Berend
May 2017 –Aug. 2017	Instructor , University of Waterloo, Canada for PMath 340 Elementary Number Theory: third year pure math course introducing students to the subject of number theory
Sept. 2011 –Dec. 2016	Teaching Assistant , University of Waterloo, Canada for various lower-level and upper year math courses: answered students' course and
Sept. 2017	homework questions in the tutorial centre, marked and proctored assignments, tests, and exams,
–Apr. 2018	and presented problems and solutions to students during labs
Jan. 2011 –Apr. 2011	Teaching Assistant , Acadia University, Canada marked assignments for a first year matrix algebra course
Sept. 2010 –Apr. 2011	Tutor , Tutoring Services, Acadia University, Canada helped calculus students with their homework questions
May 2010 –Aug. 2010	Research Assistant , Acadia University, Canada Did mathematical research in fractal geometry in preparation for my honours thesis with an NSERC USRA
Sept. 2009 –Dec. 2009	Teaching Assistant , Acadia University, Canada Regulated, checked and answered students' questions in using the online homework system WeBWorK
May 2009 –Aug. 2009	Project Assistant , Acadia University, Canada Worked on an online homework system called WeBWorK for first and second year calculus courses

Professional Activities and Service

- College of Basic and Applied Sciences Awards Committee, Middle Tennessee State University (2025-present)
- Tenure-track Search Committee in Actuarial Science, Department of Mathematical Sciences, Middle Tennessee State University (2024-2025)
- Middle Tennessee State University Combinatorics and Graph Theory Seminar Organizer (Fall 2024-present)
- STEM Faculty Mentor, The Alliance for Students with Disabilities for Inclusion, Networking, and Transition Opportunities in STEM (2023-present)
- Master's Thesis Defence Committee of Paul Klockenkemper, Supervisor: Dr. Rachel Leander (Spring 2024)

- College of Basic and Applied Sciences Curriculum Committee, Middle Tennessee State University (2023-2024)
- Undergraduate Program Review Committee, Department of Mathematical Sciences, Middle Tennessee State University (2023-2024)
- Tenure-track Search Committee in Statistics, Department of Mathematical Sciences, Middle Tennessee State University (2023-2024)
- Master's Thesis Defence Committee of Nada Srour, Supervisor: Dr. James Hart (Fall 2023)
- Middle Tennessee State University/Vanderbilt University Joint Combinatorics and Graph Theory Seminar Organizer (Spring 2023)
- Organizing Committee of the 32nd Cumberland Conference on Combinatorics, Graph Theory & Computing at Middle Tennessee State University (2022-2023)
- MS Review Committee (2022-2023), Department of Mathematical Sciences, Middle Tennessee State University
- Referee for Mathematics of Computation, Fibonacci Quarterly, Mathematics, AIMS Mathematics, Indagationes Mathematicae, International Journal of Applied and Computational Mathematics, the Journal of Combinatorial Mathematics and Combinatorial Computing, the Indian Journal of Mathematics, and the Canadian Journal of Mathematics.
- Examining Committee of Pedro Sobrevilla's Oral PhD Candidacy Exam, Supervisor: Dr. Renate Scheidler
- Steering Committee, 5th Fellows Forum, Azrieli Fellows Program, Azrieli Foundation.
- Chair, Session II, 2nd Fellows Forum, Azrieli Fellows Program, Azrieli Foundation.

Awards and Scholarships

- The Alliance of Students with Disabilities for Inclusion, Networking, and Transition Opportunities in STEM (TAPDINTO-STEM) (Senior Personnel), National Science Foundation, 2022-2025, \$109,000 USD
- Middle Tennessee-Internal Grant Opportunity (MT-IGO), 2024-2025, \$9234.94 USD
- 32nd Cumberland Conference on Combinatorics, Graph Theory and Computing grant (co-PI), National Science Foundation, 2023-2024, \$19,906 USD
- Azrieli International Postdoctoral Fellowship, 2018, 2019, 145,000 ILS per year.
- Queen Elizabeth II Graduate Scholarship in Science and Technology, 2017, \$15,000 CAD
- University of Waterloo's President Graduate Scholarship, 2017, \$5,000 CAD
- Queen Elizabeth II Graduate Scholarship in Science and Technology, 2016, \$15,000 CAD
- University of Waterloo's President Graduate Scholarship, 2016, \$5,000 CAD
- NSERC CGS M, 2012, \$17,500 CAD
- Waterloo's President's Graduate Scholarship, 2012, \$10,000 CAD
- Ontario Graduate Scholarship, 2012, \$15,000 CAD (declined)

- NSERC Undergraduate Student Research Award, 2010
- Dean’s List Scholarship, 2010
- Douglas and Frances Snow Scholarship, 2010
- Hamilton Memorial Scholarship, 2010
- White Memorial Scholarship, 2010
- Preston Warren Prize in Philosophy, 2010
- Douglas and Frances Snow Scholarship, 2009
- Lina Mae Silver Scholarship (Mathematics), 2008
- Board of Governors Entrance Scholarship, 2007
- Charles A. Eaton Memorial Scholarship, 2007

Research Interests

Analytic number theory, algebraic number theory, combinatorial number theory, elementary number theory, random graph theory, probability, combinatorics.

Papers

Submissions

- Saunders, J.C., and R. Nicholas Stephens “Residues of terms of Lucas sequences modulo 3^k .” Submitted, 19 pgs.
- Bravo, Jhon J., Pranabesh Das, Jose L. Herrera, and **J.C. Saunders**. “On Pell numbers representable as product of two generalized Fibonacci numbers.” Submitted, 13 pgs.
- Aygin, Zafer Selcuk, and J.C. Saunders “Combinations of cranks modulo 15.” Submitted, 19 pgs.
- Das, Pranabesh, and **J.C. Saunders**. “Products of Tribonacci Numbers that are the Products of Factorials.” Submitted, 13 pgs.

Publications

- Lebowitz-Lockhard, Noah, and **J.C. Saunders**. “Runs of integers with constant values of the Carmichael function.” *Integers* 24 (2024): 1-5.
- Liu, Yu-Ru, and **J.C. Saunders**. “Sieve methods in random graph theory.” *Graphs and Combinatorics* 39.3 (2023): 39.
- Bell, Jason, Keira Gunn, Dang Khoa Nguyen, and **J.C. Saunders**. “A general criterion for the Polya-Carlson dichotomy and application.” *Transactions of the American Mathematical Society* 376.06 (2023): 4361-4382.
- **Saunders, J.C.** “The number of k -tons in the coupon collector problem.” *Journal of Applied Probability* (2023): 1-14.
- **Saunders, J.C.** “The Euler totient function on Lucas sequences.” *International Journal of Number Theory* 19.02 (2023): 293-330.

- Ching, Hsin-Yun, Rigoberto Flórez, Florian Luca, Antara Mukherjee, and **J.C. Saunders**. “Primes and composites in the determinant Hosoya triangle.” *The Fibonacci Quarterly* 60.5 (2022): 56-110.
- Florez, Rigoberto, and **J.C. Saunders**. “Irreducibility of generalised Fibonacci polynomials.” *Integers* 22 (2022): 1-16.
- Barak-Pelleg, Dina, Daniel Berend, and **J.C. Saunders**. ”A model of random industrial SAT.” *Theoretical Computer Science* 910 (2022): 91-112.
- Hare, Kevin, and **J.C. Saunders**. “Generalised Fibonacci sequences constructed from balanced words.” *Journal of Number Theory* 231 (2022): 349-377.
- **Saunders, J.C.** “Density of sequences of the form $x_n = f(n)^n$ in $[0, 1]$.” *Acta Arithmetica* 201 (2021): 165-175.
- **Saunders, J.C.** “Diophantine equations involving the Euler totient function.” *Journal of Number Theory* 209 (2020): 347-358.
- Hare, Kevin G., and **J.C. Saunders**. “On (a, b) pairs in random Fibonacci sequences.” *Journal of Number Theory* 190 (2018): 352-366.
- **Saunders, J.C.** “Mahler measure of “almost” reciprocal polynomials.” *Bulletin of the Australian Mathematical Society* (2018): 1-7.
- **Saunders, J.C.** “Sums of digits in q -ary expansions.” *International Journal of Number Theory* 11.02 (2015): 593-611.
- Mendivil, Franklin, and **J.C. Saunders** “On Minkowski measurability.” *Fractals* 19.4 (2011): 455-467.

Conferences

- (2025) Combinations of Cranks Modulo 15, oral presentation of my submitted paper Combinations of Cranks Modulo 15. Integers Conference 2025, University of Georgia, Athens, GA, USA.
- (2025) Combinations of Cranks Modulo 15, oral presentation of my submitted paper Combinations of Cranks Modulo 15. Southern Regional Number Theory Conference 2025, Louisiana State University, Baton Rouge, LA, USA.
- (2025) Ranks and Cranks of the Partition Function, oral presentation of my submitted paper Combinations of Cranks Modulo 15. Bayou Arithmetic Research Days 5, Xavier University of Louisiana, New Orleans, LA, USA.
- (2024) Products of Tribonacci Numbers that are the Products of Factorials, oral presentation of my submitted paper Products of Tribonacci Numbers that are the Products of Factorials. 21st Fibonacci International Fibonacci Conference, Harvey Mudd College, Claremont, CA, USA.
- (2023) The Euler totient function on Lucas sequences, oral presentation of my published paper The Euler totient function on Lucas sequences. Integers Conference 2023, University of Georgia, Athens, GA, USA.
- (2023) The number of k -tons in coupon collector problem, oral presentation of my published paper The number of k -tons in the coupon collector problem. The 32nd Cumberland Conference on Combinatorics, Graph Theory and Computing, Middle Tennessee State University, Murfreesboro, TN, USA.

- (2023) The Euler totient function on Lucas sequences, oral presentation of my published paper The Euler totient function on Lucas sequences. Southern Regional Number Theory Conference 2023, Louisiana State University, Baton Rouge, LA, USA.
- (2021) The Euler totient function on Lucas sequences, oral presentation of my published paper The Euler totient function on Lucas sequences. Alberta Number Theory Days XIII, Banff International Research Station, Banff, AB, Canada.
- (2020) Random Fibonacci sequences from balancing words, oral presentation of my published paper Generalised Fibonacci sequences constructed from balanced words. The Nineteenth International Conference on Fibonacci Numbers and Their Applications, online.
- (2019) Diophantine equations involving the Euler totient function, oral presentation of my published paper Diophantine equations involving the Euler totient function. JA (Journées Arithmétiques) XXXI, Istanbul University, Istanbul, Turkey.
- (2018) Sieve methods in random graph theory, oral presentation of my published paper Sieve methods in random graph theory. CNTA (Canadian Number Theory Association), Laval University, Quebec, QC, Canada.
- (2018) On (a, b) pairs in random Fibonacci sequences, oral presentation of my published paper On (a, b) pairs in random Fibonacci sequences. The Eighteenth International Conference on Fibonacci Numbers and Their Applications, Dalhousie University, Halifax, NS, Canada.
- (2017) On (a, b) pairs in random Fibonacci sequences, oral presentation of my published paper On (a, b) pairs in random Fibonacci sequences. AMMCS-CAIMS (Applied Mathematics, Modeling and Computational Science-Canadian Applied and Industrial Mathematics Society), Wilfrid Laurier University, Waterloo, ON, Canada.
- (2016) Sieve methods in random graph theory, poster presentation of my arxiv paper Sieve methods in random graph theory. CMS (Canadian Mathematical Society), Niagara Falls, ON, Canada.
- (2016) On (a, b) pairs in random Fibonacci sequences, oral presentation of my published paper On (a, b) pairs in Random Fibonacci Sequences. CNTA (Canadian Number Theory Association), University of Calgary, Calgary, AB, Canada.
- (2016) On (a, b) pairs in random Fibonacci sequences, poster presentation of my published paper On (a, b) pairs in random fibonacci sequences. ACMES 2 (Algorithms and Complexity in Mathematics, Epistemology, and Science): Computational Discovery, Western University, London, ON, Canada.
- (2015) Sums of digits in q -ary expansions, oral presentation of my published paper Sums of digits in q -ary expansions. AMMCS-CAIMS (Applied Mathematics, Modeling and Computational Science-Canadian Applied and Industrial Mathematics Society), Wilfrid Laurier University, ON, Canada.
- (2014) Sums of digits in q -ary expansions, oral presentation of my published paper Sums of digits in q -ary expansions. CNTA (Canadian Number Theory Association), Carleton University, Ottawa, ON, Canada.
- (2010). Minkowski dimension and content of fractals. Oral presentation of my Honours Undergraduate Thesis Research at APICS (Atlantic Provinces Council on the Sciences) Mathematics, Statistics, and Computer Science Conference, St. Mary's University, Halifax, NS, Canada.

Visiting Seminar Presentations

- (2023) Primes and composites in the determinant Hosoya triangle, oral presentation of my published paper Primes and composites in the determinant Hosoya triangle, Number Theory Seminar, University of Waterloo, Waterloo, ON, Canada.
- (2023) The Euler totient function on Lucas sequences, oral presentation of my published paper The Euler totient function on Lucas sequences, Departmental Seminar, Xavier University, New Orleans, LA, USA.
- (2023) The Euler totient function on Lucas sequences, oral presentation of my published paper The Euler totient function on Lucas sequences, Number Theory Seminar, University of Waterloo, Waterloo, ON, Canada (online).
- (2022) The Euler totient function on Lucas sequences, oral presentation of my published paper The Euler totient function on Lucas sequences, Number Theory Seminar, Dalhousie University, NS, Canada.
- (2020) Random Fibonacci sequences from balancing words, oral presentation of my published paper Generalised Fibonacci sequences constructed from balanced words, Number and Representation Theory seminar, University of Toronto, ON.
- (2020) Random Fibonacci sequences from balancing words, oral presentation of my published paper Generalised Fibonacci sequences constructed from balanced words, Number Theory seminar, Queen's University, ON, Canada.
- (2019) Diophantine equations involving the Euler totient function, oral presentation of my published paper Diophantine equations involving the Euler totient function, Number Theory Seminar, Dalhousie University, NS, Canada.
- (2019) Diophantine equations involving the Euler totient function, oral presentation of my published paper Diophantine equations involving the Euler totient function, Number Theory Seminar, University of Waterloo, ON, Canada.
- (2016) On (a, b) Pairs in random Fibonacci sequences, oral presentation of my published paper On (a, b) pairs in random Fibonacci sequences, Number Theory Seminar, York University, ON, Canada.
- (2014) Sums of digits in q -ary expansions, oral presentation of my published paper Sums of digits in q -ary expansions. Departmental Seminar, Acadia University, NS, Canada.
- (2014) Sums of digits in q -ary expansions, oral presentation of my published paper Sums of digits in q -ary expansions. Number Theory Seminar, Dalhousie University, NS, Canada.

Extra-curricular Activities

Sept. 2020 –present	Peer Helper , Events and Education and Male Allyship Team, University of Calgary Women’s Resource Centre helped promote feminist and gender-related issues at the university by helping run events, attending diversity trainings, and holding office hours. Received Certificate of Appreciation: Silver Award, 2020-2021, Certificate of Appreciation: Gold Award, 2021-2022 , and Diversity Certificate as a Peer Helper.
Mar.2019 –Mar.2020	Volunteer , Beetroot-Food distribution Be’er Sheva helping collect and sort food in the urban market in Be’er Sheva, Israel and distribute to the less fortunate in Be’er Sheva, Israel on a weekly basis
2012–2018	Leader , University of Waterloo’s autism/Asperger’s Support Group took initiative and started an autism support club at the university for students with autism and Asperger’s where we do various activities on a weekly basis
Nov. 2017	Volunteer , Wilfrid Laurier University’s CWT (Centre for Women and Trans People)
–Apr. 2018	helped promote feminist and gender-related issues at the university by helping run events and holding office hours
Jan. 2017	Volunteer , University of Waterloo’s Women Centre
–Apr. 2017	helped promote feminist and gender-related issues at the university by helping run events and holding office hours
Nov. 2012	Gave a presentation on describing my experience in growing up and living with high-functioning autism for the Autism Ontario Waterloo Chapter
July 2011	Volunteer , Cape Breton Autism Society, Canada
–Aug. 2011	helped run programming activities for teenagers with autism by interacting and encouraging the teenagers
Sept. 2010	Vice-President , Acadia University’s Philosophy Society, Canada
–Apr. 2011	helped the President of the Society choose philosophical topics to talk about to interested students on a weekly basis
Sept. 2009	President , Acadia University’s Philosophy Society, Canada
–Apr. 2010	picked and chose philosophical topics to talk about to interested students on a weekly basis