

CURRICULUM VITAE

Benjamin R. Cook

Mathematics and Physics

Department of Mathematics and Statistics

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PERSONAL INFORMATION

Date of birth: November 17, 1998

Citizenship: Canadian, British

Permanent Residence: Fredericton, New Brunswick

EDUCATION

Master of Science, 2020-Present.

University of New Brunswick. Fredericton, Canada.

Supervisor: Dr. Nicholas Touikan

Thesis: *JSJ-like decompositions unifying splittings of groups over cyclic edge groups.*

Honours Bachelor of Science, 2016-2020.

Nipissing University. North Bay, Canada.

Supervisors: Dr. Ali Hatef; Dr. Tzvetalin Vassilev

Honours Theses: *Quantum Wells; The Lonely Runner Conjecture.*

Minor, Physics.

AWARDS AND SCHOLARSHIPS

AWARDS

- ▶ CANSSI Atlantic Problem Solving Prize, \$200. 2021.
- ▶ NUFA Learning Opportunity Award, \$800. 2020.
- ▶ CUMC Award for Excellence, \$500. 2019.
- ▶ NSERC USRA, \$4500. 2019.
- ▶ NUFA Learning Opportunity Award, \$800. 2018.

SCHOLARSHIPS

- ▶ NBIF Research Award, \$6000. 2020.
- ▶ Carl Sanders Scholarship, \$750. 2019.
- ▶ Carl Sanders Scholarship, \$500. 2018.

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RESEARCH

RESEARCH INTERESTS

Combinatorics, Geometry, Optimization, Mathematical Modelling.

PAST WORK

- ▶ *Runners*. Research Project with Dr. Tzvetalin Vassilev, Nipissing University.
Topic: Combinatorics and Number Theory. April 2020.
- ▶ *Wells*. Research Project with Dr. Ali Hatef, Nipissing University.
Topic: Quantum Well Semiconductors. January 2020.
- ▶ *An Introduction to Matchings*. Research Project with M. Kapellas, K. Seldon.
Topic: Combinatorics and Graph Theory. April 2019.

RESEARCH ASSISTANTSHIPS

- ▶ Research Assistant to Dr. Logan Hoehn, Nipissing University.
Topic: Introductory Topology and Continuum Theory. May-August 2019.
Part of NSERC USRA.

CONFERENCE PRESENTATIONS

- ▶ *The Down Under Shuffle*. 42nd Australasian Combinatorics Conference.
December 9-13, 2019. University of New South Wales. Sydney, Australia.
- ▶ *An Introduction to Matchings*. Canadian Undergraduate Mathematics Conference.
July 24-28, 2019. Queens University. Kingston, Canada.
- ▶ *Solution to AMM Problem 12008*. 98th Annual MAA Southeast Conference.
March 7-9, 2019. Lee University. Cleveland TN, USA.
- ▶ *Solution to AMM Problem 12008*. Canadian Undergraduate Mathematics Conference.
July 11-15, 2018. University of Saskatchewan. Saskatoon, Canada.
- ▶ *Solution to AMM Problem 12008*. 11th Nipissing UGRC.
March 24, 2018. Nipissing University. North Bay, Canada.
- ▶ *Simple Zeroes of Parametric Legendre Sums*. 10th Nipissing UGRC.
March 25, 2017. Nipissing University. North Bay, Canada.

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SEMINAR PRESENTATIONS

- ▶ *Wall Spaces and CAT(0) Cube Complexes, Part 2.*
April 13, 2023. University of New Brunswick. Fredericton, Canada.
- ▶ *Fundamental Group Fundamentals.*
March 16, 2023. University of New Brunswick. Fredericton, Canada.
- ▶ *Wall Spaces and CAT(0) Cube Complexes, Part 1.*
November 17, 2022. University of New Brunswick. Fredericton, Canada

WORKSHOPS

- ▶ AARMS Industrial Problem Solving Workshop.
August 3-6, 2021. University of New Brunswick. Fredericton, Canada.

TEACHING

TEACHING ASSISTANTSHIPS

- ▶ Workshop Instructor, *Introduction to Calculus I, II.*
2021-2022. University of New Brunswick.
Two, 3-hour review lectures per week.
- ▶ Teaching Assistant, *Introduction to Calculus I, II.*
2020-Present. University of New Brunswick.
2 hours of tutorial per week, marking assignments.
- ▶ Teaching Assistant, *Fundamental Math Concepts for Teachers.*
2018-2019. Nipissing University.
2 hours of lecture per week, administering and marking tests.
- ▶ Teaching Assistant, *Contemporary Physical Science.*
2017-2019. Nipissing University.
2 hours of lecture per week, administering and marking tests.

OTHER

- ▶ Instructor, *University of New Brunswick Math Learning Centre.*
2021-2022. University of New Brunswick.
6 hours of drop-in tutoring per week.
- ▶ Instructor, *Nipissing University Math Drop-In Centre.*
2017-2019. Nipissing University.
5 hours of drop-in tutoring per week.
- ▶ Private tutor.
2016-Present.
Private tutor for a variety of mathematics and physics courses.

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OTHER

VOLUNTEER WORK

- ▶ Volunteer instructor, *Nipissing University Math Kangaroo*.
2019-2020. Nipissing University.
Prepare students to participate in the Math Kangaroo contest.
- ▶ Student Recruitment Ambassador, *Nipissing University*.
2019-2020. Nipissing University.
Recruit prospective students through events such as the Ontario Universities' Fair and open houses.
- ▶ Volunteer instructor, *Nipissing University Math Circles*.
2018-2020. Nipissing University.
Introduce new math concepts to North Bay high school students through activities and applications.

INTERESTS AND HOBBIES

Private pilot, glider pilot, flight instructor. I enjoy flying, cooking, playing with audio equipment I cannot afford, and embarrassing myself attempting to play beach volleyball.