

# Dylan Spicker (PhD)

Assistant Professor  
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Department of Mathematics and Statistics

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## Education and Training

- 2022 – 2023      Postdoctoral Fellowship, McGill University  
Supervisor: Erica Moodie
- 2018 – 2022      Ph.D., Statistics, University of Waterloo  
(July 26, 2022)   Thesis: Generalizations to Corrections of Measurement Error Effects  
for Dynamic Treatment Regimes  
Supervisors: Grace Yi and Michael Wallace
- 2017 – 2018      M.Math, Statistics, University of Waterloo  
Masters Essay: Measurement error and personalized medicine: error-prone tailoring covariates in dynamic treatment regimes.  
Supervisor: Michael Wallace
- 2014 – 2017      B.Comm., Finance, Smith School of Business (Queen's University)

## Publications

- [1] Ramsay, Kelly, and **Spicker, Dylan**. (2024) Differentially private projection-depth-based medians. Under consideration in *the Annals of Statistics*.  
<https://arxiv.org/abs/2312.07792>
- [2] **Spicker, Dylan**, Wallace, Michael P. and Yi, Grace Y. (2024) Optimal Dynamic Treatment Regime Estimation in the Presence of Nonadherence. Under consideration in *Biometrics*.
- [3] **Spicker, Dylan**, Nazemi, Amir, Hutchinson, Joy, Fieguth, Paul, Kirkpatrick, Sharon I., Wallace, Michael P., and Dodd Kevin W. (2024) Challenges for Predictive Modeling with Neural Network Techniques using Error-Prone Dietary Intake Data. Under consideration in *Statistics in Medicine*. <https://arxiv.org/abs/2311.09338>
- [4] **Spicker, Dylan**, Moodie, Erica E.M., and Shortreed, Susan. (2024) Differentially private outcome-weighted learning for optimal dynamic treatment regime estimation. *Stat*, 13(1), e641. <https://doi.org/10.1002/sta4.641>
- [5] **Spicker, Dylan**, Wallace, Michael P. and Yi, Grace Y. (2023) Nonparametric simulation extrapolation for measurement-error models. *Canadian Journal of Statistics*. <https://doi.org/10.1002/cjs.11777>

- [6] **Spicker, Dylan**, Wallace, Michael P., and Yi, Grace Y. (2021) Generalizations to Corrections for the Effects of Measurement Error in Approximately Consistent Methodologies. arXiv preprint arXiv:2106.07401.
- [7] **Spicker, D**, and Wallace, Michael P. (2020) Measurement error and precision medicine: Error-prone tailoring covariates in dynamic treatment regimes. *Statistics in Medicine*. 39: 3732– 3755. <https://doi.org/10.1002/sim.8690>
- [8] Liebowitz, Jay, Chan, Yolande E., Jenkin, Tracy A., **Spicker, Dylan**, Paliszkiewicz, Joanna, and Babilioni, Fabio. (2019) If numbers could “feel”: How well do executives trust their intuition?. *VINE Journal of Information and Knowledge Management Systems*. 49(4): 531-545.
- [9] Liebowitz, Jay, Chan, Yolande E., Jenkin, Tracy A., **Spicker, Dylan**, Paliszkiewicz, Joanna, and Babilioni, Fabio. (2018) How Well Do Executives Trust Their Intuition. *Taylor and Francis*. Boca Raton, Florida.

## Presentations and Talks

- [1] † **Spicker, Dylan**. Infinite and Irregular: Covariate Driven Treatment Schedules for Dynamic Treatment Regimes. Statistical Society of Canada general meeting (2024, St. John’s, Upcoming)
- [2] † **Spicker, Dylan**. Preserving patient privacy in dynamic treatment regimes: private outcome-weighted learning (PrOWL). 16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), (2023, Berlin)
- [3] † **Spicker, Dylan**. Preserving Patient Privacy in Dynamic Treatment Regimes. Statistical Society of Canada general meeting (2023, Ottawa)
- [4] † **Spicker, Dylan**. Nonadherence in Dynamic Treatment Regimes – Moving Beyond Intention-to-Treat Analyses. McGill University Biostatistics Seminars (2022, Online)
- [5] **Spicker, Dylan**. Nonparametric Simulation Extrapolation for Measurement Error Models. Statistical Society of Canada general meeting (2022, Online)
- [6] **Spicker, Dylan**. The Harms of Historical Hyperbole. Statistics and Actuarial Science Student Seminar Series (2021, Waterloo)
- [7] **Spicker, Dylan**. Measurement Error Corrections with Non-IID Auxiliary Data. Statistical Society of Canada general meeting (2021, Online)
- [8] † **Spicker, Dylan**. Dynamic Treatment Regimes and Measurement Error: A non-technical overview (where we mostly talk about video games!). University of Waterloo Undergraduate Mathematics Research Conference. (2019, Waterloo)
- [9] **Spicker, Dylan**. Measurement Error in Precision Medicine and Dynamic Treatment Regimes. Statistical Society of Canada general meeting (2019, Calgary)

†: Indicates an invited talk.

## Selected Funding, Honours, and Awards

### Major Awards and Funding

2023	New Brunswick Innovation Fund - Talent Recruitment Fund (\$55,000)
2023	Out-to-Innovate Research Fellowship
2022 – 2023	StatLab-CANSSI-CRM Postdoctoral Fellowship
2020 – 2022	NSERC Postgraduate Scholarship Doctoral (PGS-D)
2020 (Declined)	Queen Elizabeth II Graduate Scholarship in Science and Technology
2019	Queen Elizabeth II Graduate Scholarship in Science and Technology

### Additional Awards and Honours

2020 – 2022	University of Waterloo President's Graduate Scholarship
2018 – 2020	Math Domestic Graduate Student Award
2017 – 2022	Statistics & Actuarial Science Chair's Award
2018	Statistics & Actuarial Science Doctoral Entrance Award
2017, 2018	University of Waterloo Graduate Scholarship
2017	Sutton Scholarship for Higher Education
2021	Statistical Society of Canada SARGC Video Competition. Winning Team (with Melissa Van Bussel). "Using Statistics to break down COVID-19 misconceptions"
2020	Statistical Society of Canada Case Studies in Data Analysis Competition. Winning Team (with Melsisa Van Bussel). "Forecasting iTunes popularity out-of-sample: in-sample validation for longitudinal and matching methods."
2019	CANSSI National Case Study Competition 2019. Regional Winning Team; National Finalist (with Melissa Van Bussel). "SuperLearn'ed Delays: Partial Domain Adaptation in Binary Classification with Complex and Noisy Data."

## Academic Appointments

2023 (Present)	Assistant Professor, Department of Mathematics and Statistics, University of New Brunswick (Saint John)
2022 – 2023	Postdoctoral Fellow, Department of Epidemiology, Biostatistics and Occupational Health, McGill University
2021 – 2022	Sessional Instructor, Statistics, University of Waterloo
2020 – 2022	Research Assistant, Statistics, University of Waterloo
2017	Machine Learning and Data Analyst, Smith School of Business
2015 – 2017	Research Assistant, Computer Science, Database Systems Lab. Queen's University

## Student Supervision

Talbot, Patrick	2024 (Fall; Upcoming)	Undergraduate (Honours Project)
Koehler, Alyssa	2024 (Summer; Upcoming)	Undergraduate
Caldwell, Jonah	2024 (Summer; Upcoming)	Undergraduate

## Courses Taught

2024 (Winter)	STAT4243 Statistical Computing	UNBSJ
	Enrollment: 7	
2023 (Winter)	STAT1793 Introduction to Probability and Statistics I	UNBSJ
	Enrollment: 92	
2023 (Fall)	STAT2593 Probability and Statistics for Engineers	UNBSJ
	Enrollment: 31	
2022 (Winter)	STAT 437, Methods for Life History Analysis	UW
	Enrollment: 37	
2021 (Winter)	STAT 231, Statistics	UW
	Enrolment: 504	

## Statistical Consulting

2022 (Summer) Web scraping e-commerce data (e-cig products). University of Waterloo  
2021 (Summer) Web scraping e-commerce data (grocery data). University of Waterloo  
2021 (Winter) Web scraping e-commerce data (e-cig products). University of Waterloo

## Academic Service

- Ad hoc peer reviewer for Statistics in Medicine.
- Ad hoc peer reviewer for Advances in Methods and Practices in Psychological Science.
- Conference Judge, Statistical Society of Canada Student Conference, 2022

## Teaching Assistant

2017 – 2020 Teaching Assistant, Statistics, University of Waterloo  
2016 – 2017 Teaching Assistant, Computer Science, Queen's University

## Courses

2020 (Fall)	Masters of Actuarial Science (Program)	University of Waterloo
2020 (Winter)	Masters of Actuarial Science (Program)	University of Waterloo
2019 (Fall)	Masters of Actuarial Science (Program)	University of Waterloo
2019 (Spring)	STAT 431, Generalized Linear Models	University of Waterloo
2019 (Spring)	STAT 331, Applied Linear Models	University of Waterloo
2019 (Winter)	STAT 431, Generalized Linear Models	University of Waterloo
2019 (Winter)	STAT 241, Statistics (Advanced Level)	University of Waterloo
2018 (Fall)	STAT 330, Mathematical Statistics	University of Waterloo
2018 (Fall)	STAT 443, Forecasting	University of Waterloo
2018 (Spring)	STAT 337, Intro. to Medical Statistics	University of Waterloo
2018 (Spring)	STAT 333, Applied Probability	University of Waterloo
2018 (Winter)	STAT 441, Classification	University of Waterloo
2018 (Winter)	STAT 443, Forecasting	University of Waterloo
2017 (Fall)	STAT 334, Probability Models for Business	University of Waterloo

2017 (Fall)	STAT 373, Regression and Forecasting Methods in Finance	University of Waterloo
2017 (Fall)	COMM 493 <sup>†</sup> , Analytics and AI for Business	Queen's University
2016 (Fall)	CISC 490, Deep Analytics using Watson	Queen's University
2015 (Fall)	CISC 490, Deep Analytics using Watson	Queen's University

## Leadership and Professional Activities

- Mentor for Prospective Graduate Students, University of Waterloo (Undergraduate Mathematics Research Conference), 2019
- Graduate Teaching Assistant Instructor, Volunteer Position, University of Waterloo, 2018 – 2019
- Co-founder, Queen's Data Analytics Association, 2016–2017
- Executive, Queen's Commerce Society, 2014–2017
- Executive Team, “Career Mashup” (Queen's University), 2016

## Research Interests

Causal inference, longitudinal data, observational studies, complex data, measurement error, missing data, medical statistics, evidence-based decision making, big data, machine learning, reinforcement learning, data science