

# MITCHELL A. TAYLOR

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## Research Interests

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My main area of expertise is functional analysis and order structures, and I am particularly interested in Banach spaces, Harmonic Analysis, Operator theory, and Topology. My Master's research has focused on the theory of unbounded locally solid topologies and  $uo$ -convergence in vector lattices. These concepts can be viewed as abstractions of convergence almost everywhere and convergence in measure, and have recently been used by N. Gao, D. Leung, and F. Xanthos to prove several unsolved problems in mathematical finance (risk measures). My focus has been on interactions between  $uo$ -convergence and topology, and the developing connections between minimal and unbounded topologies.

## Education

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**Master of Science, Mathematics** 2018  
University of Alberta - Edmonton, Alberta, Canada  
9 courses taken

**Bachelor of Science (Honors), Mathematical Physics** 2016  
University of Alberta - Edmonton, Alberta, Canada  
46 courses taken

Cumulative GPA 3.97/4.0 with 15 graduate courses.

## Experience

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**Research Assistant** May 2017 to Current  
University of Alberta - Edmonton, Alberta  
Developed the theory of unbounded topologies in locally solid vector lattices, and discovered many new and interesting connections with minimal topologies and  $uo$ -convergence.

**Teaching Assistant** Sept 2016 to Dec 2016  
University of Alberta - Edmonton, Alberta

**NSERC Undergraduate Student Research Award (USRA)** May 2016 to Aug 2016  
University of Alberta - Edmonton, Alberta  
Worked with Dr. Xinwei Yu, Associate Professor, Mathematical and Statistical Sciences, on convex optimization problems.

Began working with Dr. Vladimir Troitsky, Professor, Mathematical and Statistical Sciences, on vector and Banach lattices.

**NSERC Undergraduate Student Research Award (USRA)** May 2015 to Aug 2015  
University of Alberta - Edmonton, Alberta  
Collaborated with supervisor, Dr. Xinwei Yu, Associate Professor, Mathematical & Statistical Sciences.

Successful in proving a new uniqueness result for the 2D Doi-Onsager model for the isotropic-nematic phase transition in liquid crystals.

## Academic Awards and Distinctions

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Dean's Excellence Award	2017
Dean's Silver Medal in Science	2016
Queen Elizabeth II Graduate Scholarship (Master's)	2016
Dr. Kenneth Newbound Memorial Scholarship in Physics Awarded for superior academic standing in the third year of honors Physics	2015
Jason Lang Scholarship Scholarship for outstanding academic achievement	2015
Louise McKinney Post-Secondary Scholarship Academic scholarship awarded to top 1.5 to 2% of the class	2014
Louise McKinney Post-Secondary Scholarship Academic scholarship awarded to top 1.5 to 2% of the class	2013
University of Alberta Academic Excellence Award	2012
Faculty of Science Academic Excellence Award	2012
Canadian Federation of University Women Scholarship	2012
Alexander Rutherford High School Achievement Scholarship	2012

## Papers/Preprints

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- [1] Completeness of unbounded convergences, *Proc. Amer. Math. Soc.*, to appear.
- [2] Metrizable of minimal and unbounded topologies, with M. Kandić, submitted.
- [3] Unbounded topologies and  $uo$ -convergence in locally solid vector lattices, submitted.
- [4] Note on uniqueness of the isotropic solution of the 2D Doi-Onsager model, with Xinwei Yu, submitted.

## Conference Talks

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Unbounded topologies and  $uo$ -convergence in locally solid vector lattices, *Positivity IX*, July 17<sup>th</sup>-21<sup>st</sup>, 2017, University of Alberta, Edmonton, Canada

## Other Work Experience

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<b>Production Assistant/Printer Operator</b> RUN Digital, Calgary, AB	May 2014 - June 2014
Operated several large format digital printers and laminating machines simultaneously. Produced banners, posters, vehicle graphics, point of sale materials and other advertisement products. Completed all tasks accurately and in a timely manner. Returned to University of Alberta after two months to attend summer classes.	
<b>Coordinator, Shipping &amp; Receiving</b> RUN Digital, Calgary, AB	May 2013 - August 2013
Coordinated shipping and receiving for RUN Digital, a prominent large format digital print company in Calgary. Also provided support with production completion requirements. Demonstrated value as a highly motivated, quick learner with exceptional work ethic and organizational skills. Improved bottom line through the implementation of more efficient systems.	