



## Mathematics & Statistics Colloquium

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Friday, February 21, 2020, 4:15pm-5:15pm  
G5 Rolla Building

Please join for refreshments before the talk!

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### Dr. Nick Fewster-Young

Assistant Professor

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### Exploring new existence results in fractional differential equations

**Abstract.** This talk will explore some fundamental theories and results about singular fractional differential equations and present some new existence results in this field. The two challenges in this theory stem from one in the singular case where time or space is singular in the equation, while in the fractional setting, there are key obstacles around the commutativity of fractional derivatives. The particular scenarios which are explored will be nonlinear problems with boundary value conditions on the real line. Finally, the talk will present the ideas to build these results onto time scales.

**Biographical Sketch.** Dr. Nick Fewster-Young is an Assistant Professor of Mathematics at the University of South Australia. He has a PhD (2014) in Mathematics from UNSW Australia (under Professor Christopher Tisdell). His research interests are in the areas of singular and fractional differential equations, and dynamic equations on time scales and results relating to differential inequalities, a priori bounds and existence of solutions.