

# MATH COLLOQUIUM SERIES



SCHOOL OF MATHEMATICAL SCIENCES  
UNIVERSITI SAINS MALAYSIA



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## FRACTIONAL CALCULUS AND ITS APPLICATIONS (PART 2)

The applications of fractional calculus are very widespread nowadays. It is safe to say that almost no discipline of modern engineering and science remains untouched. For example, the applications of fractional calculus can be found in rheology, viscoelasticity, acoustics, optics, chemistry, statistical physics, robotics, control theory, electrical, mechanical, and bioengineering. In fact, one could argue that real-world processes are fractional order systems in general. The main reason for the success of fractional calculus applications is that this new fractional-order concept is often more accurate than the integer-order. This seminar focuses on the basics of fractional calculus and presents the applications of the fractional order Caputo derivative operator and Riemann-Liouville integral operator for the algebraic functions, and derives their general properties for such types of functions. Finally, we will discuss the conversion of classical differential equations into fractional-order differential equations.

 **LIVE** • matematikUSM

**Friday, 16 June 2023**  
**9:00 – 10:00 am (Malaysia)**  
**<https://bit.ly/MCS16-06-2023>**

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