



**The Hong Kong University of Science and Technology**

**Department of Mathematics**

**Seminar in Financial Mathematics**

**Improper Use of Mathematics in the  
Finance Industry**

By

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ABSTRACT: The finance industry and its academic arm in fields such as financial engineering, mathematical finance, and quantitative finance, have acquired a reputation for mathematical sophistication, but the reality is quite different. Sophistication in the application of mathematics entails not only mathematical rigor – which, in finance, does not meet the standard of rigor required in mathematics – but also an understanding of when and whether to use mathematical formulas at all, and what cautions and constraints must be observed if they are used. This talk will show that (1) it is often decided to apply mathematical formulas and to base decision-making on them without adequate consideration and understanding of whether it will be possible to obtain accurate and unbiased inputs to those formulas, and thus whether it will be possible for them to generate meaningful and reliable outputs; (2) lack of rigor comes at a real price: poorly-specified and often erroneous mathematics in industry research and financial journals is frequently used as a springboard to claim support for incorrect conclusions that are only vaguely connected to the mathematics; and (3) data mining and p-hacking of demonstrably highly random data has led to a proliferation of false conclusions, which are then touted in marketing documents claiming research support. The result, which can be traced in large part to the unsophisticated use of mathematics in finance, can be clearly seen in the costs and risks the finance industry has imposed on the greater economy.

***Date: Thursday, 12 April 2018***

***Time: 4:30pm – 5:30pm***

***Venue: Room 1511, Academic Building  
(near Lift 27-28), HKUST***

***All are welcome!***