Modelling using differential equations: undergraduate projects

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SIMIODE EXPO, 2021

Who is this talk for?

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- Capstone project. (started 2020).
- Honours project.

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- (my) Modelling projects: is this a fraudulent talk?

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(SIMIODE21. Glen Ledder. *An Epidemiological Model for COVID-19*)

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- *SIAM News* **53**(4), May 2020, Special Issue on Infectious Disease Modeling.
- Jenny Morber. Grass, Trees and Fire: Elements of a Savanna Lifecycle. *SIAM News*, November 2018
- Daniel H. Rothman. Carbon Cycle Catastrophes: A Dynamical Systems Perspective. *SIAM News* **52**, November 2019.

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- Njagarah, J.B, and Nyabadza, F. Modelling the role of drug barons on the prevalence of drug epidemics. *Math Biosci Eng.* 2013 Jun; **10**(3):843–60.

Ideas for projects: other student projects

- C.M. Kribs-Zaleta. Sociological phenomena as multiple nonlinearities: MTBI's new metaphor for complex human interactions. *Mathematical Biosciences and Engineering*, **10**: (5–6): 1587—1607, 2013. (Mathematical and Theoretical Biology Institute).

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- Mark Nelson Previous six credit-point projects.

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- Your research.

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- Modelling projects: major changes to model, 'major' new investigations of old model. Can lead to papers, but...

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- **Q**. Should students do 'research'?
  A. What do we mean by research?

Quote

Harold Macmillan (1894–1986)
British Conservative statesman; Prime Minister, 1957–63

"As usual the Liberals offer a mixture of sound and original ideas.
Unfortunately none of the sound ideas is original and none of the original
ideas is sound."

speech to London Conservatives, 7 March 1961

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