STA5066Z: Mathematical Modelling of Infectious Diseases
Assignment One

1. Influenza - Hayli
2. COVID-19 - Timothy
3. Malaria-Zach
4. TB - Nonhlanhla
5. HIV - Olivia
6. Ebola - Manala
7. Hepatitus E
8. Hepatitus B/C - Taru
9. Dengue - India
10. Schistosomiasis
11. Listeriosis - Modiehi
12. Diptheria
13. Pertussis
14. Measles - Raisa
15. Chicken Pox - Courtney
16. Gonorrhea
17. SARS – Yovna
18. Rabies – Ehsaan
19. Yellow Fever
20. MERS
21. Cholera

In this assignment I, as a health policy maker have requested you to produce a report to answer a specific question on a disease (your choice above). Your report should include the following sections:
- Literature Review :
  - Biology and transmission dynamics (what is its origin, how does in spread),
  - history (then and now on impact of disease) and
  - control (treatment, vaccination, immunity etc)
- Develop a model to capture transmission dynamics (justify model design)
- Look for a dataset, fit your model to the data while also sourcing parameters from literature (other models and studies)
- Sensitivity analysis of your parameters
- Investigating a control mechanism (Answer a question, such as examples below)
  - Ex1. Adding drug therapy
  - Ex2. Resistance develops to a known drug
  - Ex3. Introducing a vaccine
- Compile all into a report (10 pages max) along a one page policy brief.
- Include code in an appendix

Friday 12 June lecture: You will each present a 2-4min overview of your disease, question you're going to answer, and dataset you have located.

Due date: Monday 29 June 2020. Please submit with a plagiarism declaration on Vula. Late assignments will attract a penalty of 5% (absolute) per day.