

Group Projects

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During this module, we thought it would be fun for you to really get your "hands dirty" by working in small groups to carry out a mini-project as infectious disease modelers! Each day we will set aside time for you to work on this, and on Friday afternoon each group will give a short presentation to the entire group.

Here are a couple of suggestions as to what you might choose to do:

1. Find a paper from the literature that uses mathematical models to provide insight into infectious disease dynamics. Based on this paper either
 - (a) propose and investigate an alternative model; or
 - (b) extend/amend the existing model to investigate other questions; or
 - (c) critique the model and findings, and compare to work in other papers on the same question/issue.
2. Develop and investigate a simple mathematical model for a question/issue in infectious disease that interests you.

Possible topics and diseases of interest (not exhaustive!):

- Infection dynamics within a single host (e.g. HIV)
- Control of mosquito-borne pathogens (e.g. malaria)
- Spread of disease through specific contact networks (e.g. sexually transmitted diseases)
- Role of reservoir species in maintaining disease (e.g. West Nile virus, rabies)
- Potential effect of environmental factors on disease dynamics (e.g. cholera)

- The consequences of evolution for infectious disease control (e.g. antibiotic resistance, vaccine escape)

We encourage you to talk with us and search the literature if you are interested in any topic or disease not listed above. In particular, there have been a number of infectious diseases that have recently made the headlines, both in the US (e.g. whooping cough, measles), and around the world (e.g. Ebola, MERS - Middle East Respiratory Syndrome, Chikungunya, avian influenza), which you might want to investigate further.