Math 4MB3 Project Notebook 2019

Siddharth Reed (The Plague Doctors)

April 15, 2019 @ 23:27

Wednesday 13 March 2019

Group Meeting
Approximate Duration: 1 Hour

- Decided to work on project 2.4, discussed the project and what disease we should be looking at

Friday 15 March 2019

Work Alone
Approximate Duration: 2 Hours

- Investigating possible diseases to focus the project on, mostly reading papers.

Monday 18 March 2019

Group Meeting
Approximate Duration: 4 Hours

- Decided to investigate cholera

- Started investigating models of cholera, treatment methods for cholera (modern and old), biology of Cholera, transmission dynamics

- Decided to look into spatial modelling, after learning water highly important for the spread of cholera

Work Alone
Approximate Duration: 6 Hours

- Writing R code for spatial model of Cholera transmission

- Working on having 'wells' as sources of infection, in specific patches

- Started investigating models of cholera, treatment methods for cholera (modern and old), biology of Cholera, transmission dynamics

- Surveying literature for spatial models of cholera

Tuesday 19 March 2019

Work Alone
Approximate Duration: 6 Hour

- Still working on spatial code with wells

- adding neighbour infection transmission

- writing plotting code

Wednesday 20 March 2019

Group Meeting
Approximate Duration: 4 Hour

- Specifying model construction, what dynamics we are considering

- Finding paramater estimates in the literature

- Writing biological background information

- Deciding to explore different treatment strategies and their effectiness and how to tailor them to the spatial case

Work Alone
Approximate Duration: 3 Hour

- compiling references in latex

- Still finalizing, fixing bugs in the spatial code

- Preliminary report formatting, organizing into section files

Thursday 21 March 2019

Work Alone
Approximate Duration: 2 Hours

- Reviewing some literature to better understand the SIRW model

- fixing bugs in the spatial code, adding plotting code

Monday 25 March 2019

Group Meeting
Approximate Duration: 2 Hours

- Adding SI_hI_lRW model description

- adding mathematical descriptions of treatment strategies to compare

- Decide to use final size, peak incidence, time to peak incidence (not necessairily all) as metrics to compare treatment strategies

Work Alone
Approximate Duration: 5 Hours

- Rewrote spatial code to work with continuous model, and better reflect singlepatch model

- write code for single patch model and plotting

Tuesday 26 March 2019

Work Alone
Approximate Duration: 13 Hour

- formattig report (line numbers, worcount script, knitpdf script, references, README, etc.)

- finish redone spatial code and plotting code

- Finish single patch simulation and plottig code

- Editing of other sections

- Writing up multipatch model description

- reorganized git repo to be easier to find/modify things

Tuesday 2 April 2019

Group Work
Approximate Duration: 3 Hour

- Discussed "story" direction for final project, based on comments

- updated parameter values

- fixed minor stuff based on your comments

Wednesday 3 April 2019

Group Work
Approximate Duration: 1 Hour

- discussed presentation outline

- update discussion based on some preliminary analysis

Thursday 4 April 2019

Group Work
Approximate Duration: 2 Hour

- Discussed presentation direction

- skeleton presentation outline

- dicussing what plots work best

Sunday 7 April 2019

Group Work
Approximate Duration: 4 Hour

- worked on making presentation flow better

- fixing slide typos

Work Alone
Approximate Duration: 12 Hours

- Made gifs of the multipatch population models

- Made gif of the treatments applied to multipatch mode

- tried to put gifs in pdf, did not work

- added treatment comparison for multipatch model

- added multipatch slides to presentation

Monday 8 April 2019

Group Work
Approximate Duration: 1 Hour

- practiced/polised presentation before going

Saturday 13 April 2019

Work Alone
Approximate Duration: 9 Hour

- fixed some spatial parameter bugs

- added spatial severity model

- compare treatments for spatial severity model

- cleaned up/re-organzied some code

- updated multipatch model descriptions

Monday 15 April 2019

Work Alone
Approximate Duration: 9 Hour

- added plot for severity model

- reorganized report sections

- added severity, multipatch, multipatch with severity treatment comaprisons

Total time spent on this project

Group work: 22 hours *Solo work:* 65 hours