Resolved Unresolved @15_f2

Actions

Nandini Bhat 2 months ago

The concept of the threshold got me thinking- is the transmission rate affected by *adherence* to a threshold? And is there a way to take this into consideration when creating a model? It would probably be difficult as you would need to have a measure of how many people didn't adhere to guidelines, but it's definitely interesting to think about.

helpful! | 0

Elisabeth stade 2 months ago

Great question. These models appear to be designed to work independent of the populations size. However, if you investigate what happens when you look at large range of starting populations you should see issues with a - the transmission coefficient. (consider that I*S will be vastly great when S is 1,000,000 vs. S at 100 - it does not grow linearly - and so you will need different a'a)

a is in fact both the percent of contacts the result in illness AND a reflection of the quarantine conditions. And as you point out the threshold value is also dependent on a.

We can improve our model with conditions for populations size, breaking up a into 2 components, and even splitting the infection rate I' into part for different quarantine levels!

The advantage of our first model is it's simplicity, and you may find "making improvement" is actually quite tricky, but super satisfying when it works.

good comment | 0

Reply to this followup discussion

Resolved Unresolved @22_f3

Actions

Nandini Bhat 3 months ago

This whole video was a big "a-ha" moment! The number and the language used had me freaking out, I was trying to recall some type of formula or process that matched the language in the question. After the example everything suddenly seemed so obvious.

As for other "a-ha" moments, I definitely had some while studying statistics for psychology. I didn't understand anything in school, but the "applied" nature of the topic at university level made me more enthusiastic. Things suddenly seemed a whole lot easier once I knew how I was going to use them. I guess the same thing goes for this activity- once context was applied to the problem, everything clicked. From the main ideas of this week, I can see that this week's topics have plenty of application examples, which is great.

~ An instructor (Elisabeth stade) thinks this is a good comment ~

helpful! | 1

Resolved Unresolved @20_f3

[redacted] 2 months ago

I was curious what others thought about the superimposed graphs in Question #6. I mean, it was interesting that the scaling between the two graphs was different. So the graph showing the susceptible population shrinking over 10 days covered the same amount of space as the recovered population growing over 20 days. But the whole thing left me curious. Why is the scaling different between the two? And what was the question getting at by having us look at the graphs superimposed on each other?

Just hoping to spark some discussion, not trying to steal someone's answer :)

helpful! | 0

Nandini Bhat 2 months ago

Actions

Even I was curious about this, as well as the fact that it is only the x-axis that has been presented differently- so time is what matters here. The graphs for S and I share the same scale on the x-axis, and these are also populations that face some reduction- the susceptible population reduces after infection, and the infected population reduces after recovery. The only population that keeps growing with no reduction is the recovered population, and this growth continues even after the last infections have occurred as people keep recovering. I'm not entirely sure, but that might be the reason for the different scale- recovery is still occurring, even after new infections have stopped.

As a side note- these graphs really show how easy it is to make mistakes while trying to understand data. I took an EEG class during my Master's and our professor really drove home the fact that we need to read the MATLAB generated graphs very, very carefully to avoid misleading results. If I wasn't aware of this and I had just looked at these graphs without having to do any of the homework questions, I might have glossed over them and missed the different scale on R entirely.

helpful! | 2