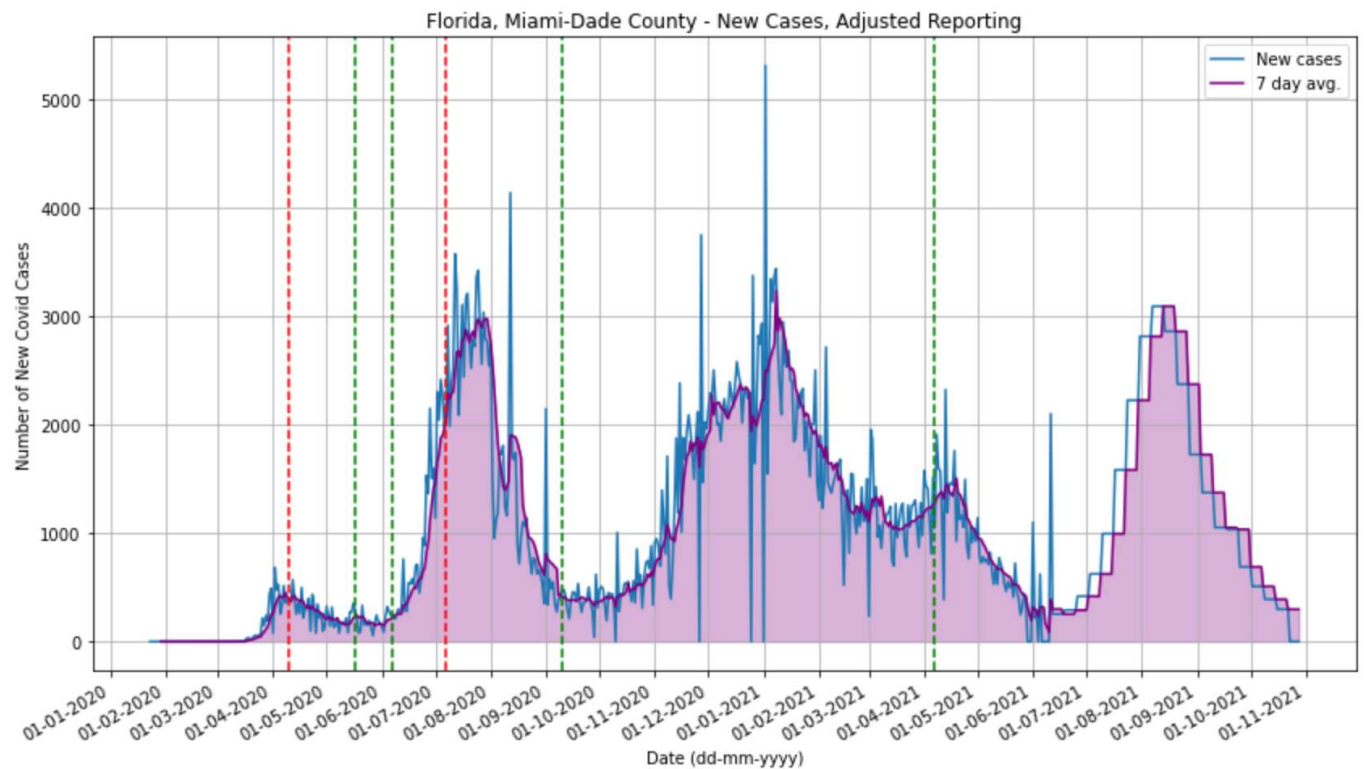


## Assignment A4

Samuel Perebikovsky



The graph above shows the amount of new COVID cases every day and also has the 7 day moving average. I also had to find other sources for mask mandates so I was using the county website. Since the mask mandate did not end in my county I decided to look at how restrictions affected the new cases/spread of COVID. We can see red and green vertical dashed lines which represent different COVID restrictions being tightened and loosened, respectively. The blue line is the new number of covid cases per day while the purple line represents the 7 day rolling average of the covid cases. The x-axis corresponds to the date while the y-axis has the number of COVID cases. We can see right after the first restriction, which corresponds to a mask mandate on April 9th, 2020 as well as shutting down restaurants and similar businesses in most cases, the number of cases started to trend downwards. Next, we see a loosening of mask mandates within a month of each other around late May/early June, the first of which reopened (outdoor restaurant seating) most places except bars, movie theaters, etc. while the second one reopened beaches, gyms, etc. and updated the mask policy to where you can remove it while eating. The first one seemed to cause a minor downwards trend in cases which then started leading upwards, while the second one seems to be right before a very sharp uptick in cases. As the cases were climbing an amendment was made to the mas mandate and some restrictions were added onto restaurants and public places again. right after these restrictions, we see it continues to grow for about a month before falling sharply. Next, another lifting of restrictions which finally opened the least necessary places like bowling alleys, arcades, and also allowed no masks for team sports. This is followed by a lowering of cases for a little over a month before the cases shot up again. But then in early January of 2021 they started to fall slowly without any greater restrictions placed upon the county. Finally, we have the last loosening of restrictions which allowed everything to open almost fully,

provided they still follow the COVID protocols (hand sanitizer everywhere, open windows, etc.). Which seems to lower the case counts overall for a long time before they rise and fall again with seemingly no other factors. So it becomes clear that even though we had mask mandates almost the entire time, we still had COVID cases. But whether or not the masking mandates helped prevent potentially more COVID cases is unclear from this first round of analysis.

I would like to point out that pretty much the whole time between April 9, 2020 and now, there has been a mask mandate for most public spaces in the county. At no point during this period was it okay to be indoors in a public place without a mask (unless eating, smoking, medical reason, etc.). I was able to obtain this information manually just from reading the county's website and looking at the different emergency orders that were in place. This makes it difficult to answer the question of whether masking policies are effective at preventing the infection rate of COVID because there are rises in COVID cases and falls in COVID cases all while the masking mandate is still in effect. (I have a graph with infection rate as well but it was not as impactful). Something interesting to consider is that the state of Florida does not have a mask mandate currently and that might contribute to the wild fluctuations we see as people from outside the county come to visit. Considering how many variables go into the delay of getting COVID and it being reported it seems to be somewhat pointless to try to model that accurately with just the given data. I had made a graph with a 7 day delay (period of infecting others) but it doesn't particularly change anything drastically. The mask compliance survey data seems to be difficult to use because it was only conducted for about 2 weeks in July. While it can be used to understand the general sentiment of the county, the one data point means it would probably be a bad idea to apply it across the whole cases data. This data would be very useful if we could see how the attitudes towards masking changed throughout the course of the pandemic (the longer the lockdowns, the more people don't enjoy masks and want to return to normal, etc.) If we had multiple mask compliance data points then perhaps we could interpolate some function between the points and see how the changes in mask compliance data effected the COVID infection rates. That would probably be the most useful as we could guess when people were 'masked' but wearing it below their nose, etc.

I did not communicate much with other people or use their code for this part of the project. The people I was in contact with did not have the same problems with their data as I had with mine so I worked mostly on my own to resolve my lack of masking data. I know some other people also had little mask data but I was able to see that a mask mandate did exist for Miami Dade; I just had to find the data elsewhere. If my county had no mask mandates whatsoever then it would be easier to utilize the mask compliance data since even without a mandate we could assume that x% of the population wore masks. But seeing as how my particular county never let go of the mask mandate we cannot utilize that data as readily. I am also concerned about Miami's reporting of the COVID infections after June 2021. The data looks very nicely/normally distributed which is causing some concern as to the validity of the numbers for me. And what was the reasoning for changing the updates from once a day to once a week? That seems to be very useless and I cannot think of a good reason for it; especially because hospitals were required to give information on COVID patients daily (which I found throughout the research of the emergency orders). I got the idea to create a bar graph with the days of the week from Andrew and from there I was interested in looking at concrete ways to see the effect of masking. Again having the mask compliance data as one data point was not very useful because we can't assume that 'always masking' leads to less cases from that portion of the community. Overall, I feel this question has no clear

answer from the data provided. It appears that every time restrictions tightened, there was a decrease in cases, but at the same time, the cases could go down and then sharply up with no changes in restrictions on masking. Of course, Miami is known as a 'party' city and perhaps this contributed to the increase in cases since people might be without masks when it is legally required. It is difficult to tell from the data given. But again, it is important to note that Miami-Dade County seems to have had the mask mandate continuously from April 9th, 2020. With that in mind we have very little data about the spread of COVID without masks and are not able to tell with certainty if there was any difference made by the mask mandates.