March 11, 2020

Hello everyone,

We hope you are all having a nice spring break but we are sure you are also trying to figure out how to navigate your semester once classes resume next week. We are providing an update for how our class (2155 Energy and Environment) will proceed given the new developments on campus regarding the coronavirus. The below update applies until at least the end of March, but we will keep you informed as the situation evolves.

Everyone’s safety and well-being is the most important thing right now. Both of your instructors are very much in-favor of the University’s leadership to limit person-to-person transmission of the virus.

We get the sense that many people are not taking this issue seriously. We all know by now the risks to the elderly and persons with compromised immune systems (and many of us have family and friends in these categories); however, what is not getting enough attention is the coming shock to our health system.

The best evidence is that the number of cases are doubling every 5-8 days, and that 10% of cases require hospitalization, often for weeks at a time. In China 15% of confirmed cases required hospitalization. In Italy, with a high elderly population, it is roughly 50% of confirmed cases. Simple math shows what lies ahead unless significant steps are taken to reduce transmission.

Assuming on the conservative side, the virus doubles every 7 days, and 100 people in the Columbus area have the virus today, March 11th but are not yet symptomatic. (hopefully this is a high number, but we don’t know)

- 200 people will have the virus by March 18th
- 400 people will have the virus by March 25th
- 800 people will have the virus by April 1st
- 1,600 people will have the virus by April 8th
- 3,200 people will have the virus by April 15th
- 6,400 people will have the virus by April 22nd
- 12,800 people will have the virus by April 29th
- 25,600 people will have the virus by May 6th with 2,500 hospitalized
- 51,200 people will have the virus by May 13th with 5,100 hospitalized
- 102,400 people will have the virus by May 20th, with 10,240 hospitalized
- 204,800 people will have the virus by May 27th, with 20,480 hospitalized

And so on. This is in Columbus alone. We cannot manage 10,000 people hospitalized. This is not alarmism or a worst-case scenario. This is reality. Even if you assume 5% of cases require hospitalization or that only 10 people in Columbus currently have the virus, you still arrive at numbers that will overwhelm the healthcare system by the end of May.

Unless we …….Slow…. The…. Virus…. Down…. 

In Italy, they are currently turning people away from Intensive Care and rationing ventilators based on likelihood to survive. In China, they have had to build entire hospitals from scratch to house the scores of sick. Health care workers catch the virus and cannot work leading to shortages of doctors and staff. There is an attorney in New York that singlehandedly infected over 50 people. In Boston, over 80 people were infected by attending a single conference.
Please take care to avoid large gatherings and interacting in tight quarters. Please avoid parties and big gatherings. It sucks. Its no fun. But our actions now will determine how things play out by the end of May.

Please share the above message with your friends and family, or anyone else who thinks this is not a big deal.

**Regarding the Class:**

Please let us know if your situation presents a challenge to the proposed plan below. We will be as flexible and accommodating to your situation as we can be, so please just communicate to us if you foresee any challenges to the above plan.

1. **LECTURES:** Lectures will continue at their normal times but they will be *online* only. We will not meet in our classroom, however we will meet “live” online. We will be giving the lectures using the Zoom video conferencing client. We will follow up links to the Zoom meeting for each lecture and instructions later this week for how to access this. To access zoom, you will click on the link and download a small and free program to run Zoom on your personal computer. Our expectation is each of you can log on to the site from your personal computer as we go through the lecture slides, which you will be able to see as we narrate, you will be able to ask questions via the Chat and also via your computer video and audio. Zoom can handle up to 300 participants simultaneously. The zoom sessions will be recorded and posted to the website, and we will also continue to post the lecture files on the carmen course site like we normally do.

2. **HOMWORKS:** We will be proving an update on the two remaining homework assignments including the final project assignment. Stay tuned for details.

3. **TESLA FIELD TRIP:** The field trip to Tesla’s showroom on March 31 and April 02 is currently “wait and see” but given what is likely to occur in the next few weeks and months, will anticipate it will probably be cancelled. We will post more information when we know more.

4. **FINAL EXAM:** The final exam is still planned as scheduled for April 22\textsuperscript{nd}. However, we will of course have to keep this flexible as the situation develops. It is possible the exam may occur online via Carmen. Stay tuned for updates on this.

That is all for now, stay tuned for more updates.

Please let us know if you have any questions or concerns.

Dr. Sawyer and Dr. Jacquet