

Exploring SARS-CoV-2 & COVID-19: Pandemic 2020 Research papers

For the research paper you will be discuss topics relating to the novel virus SARS-CoV-2 and COVID-19. You have many options to choose from – researching the possible origins, transmission, and evolution of the virus, as well as the epidemiology of COVID-19 including symptoms, treatment, testing, racial disparities, and global consequences. You can discuss how information about the virus and disease has been disseminated to the public, and the importance of evidence-based practices in public health. Your group will take on community roles to write your research paper and provide at least 3-4 references (at least one reference per person). Please come up with a very unique and catchy title for your paper too (the best titles get extra credit points)

Each one can pick from one of the following discussion topics. You should divvy up the questions to research within your topic and everyone should contribute an equal amount to get to a 4-page paper. Since you're taking different roles in the community this is not a typical research paper because you can write it like a "script" depending on the roles in the community you choose to portray. You will turn in the iLearn Forum posts. Everyone in the group will submit the group paper to their own forum post and please put the title of the paper as the title of the post. Be sure to put everyone's full name (in alphabetical order by last name) on the paper on the last page with the title again. If anyone is from a different section than where you are turning it in you should put the name and section #. (Also please use the name on the roster rather than nick names.) The paper can be a straight research paper or it can be in the form of a university lecture, press release, newscast, grand rounds, community forum, or legislative arguments depending on how you want to present your research. Depending on which topic you are presenting, you will assume the role of professors, healthcare officials, community leaders, politicians/legislators, research clinicians, conservationists or members of the media in order to convey your information.

There are many suggested questions within your main topic. You can choose which ones interest you the most, or come up with new questions within your topic to explore. Specific examples and statistics are also important to convey information. If you want to include graphs, tables or other info-graphics they should not count towards the 4 page minimum written report. You can go over 4 pages of research if you need to, but you will be deducted points if it is shorter than 4 pages – please use Cambria or Calibri 12 pt font, double spaced, regular margins (.8" or less) and don't forget the catchy title on the 1 st page (no title page is needed). Please put your names at the very end of the paper on the last page after the references and put the title on that last page as well as at the top of the 1 st page. You will be reviewing another group's paper for the peer review so keep in mind that other students might be reading your paper and you want it as interesting, well written and please edit typos before submitting. Please do not use foul language in the papers either – it should be professional.

Pandemic 2020 Discussion Topics:

- **Virus Background information:** this should include structure, possible origination, classification, and transmission. Where and how did this virus emerge and how has it mutated and replicated? What is the structure of this virus such as whether it is an RNA or DNA virus and how many nucleotides is it composed of? How many proteins does it code for? How does it attach to a host cell? What are the different viruses within the Corona Viruses family that are able to infect humans? How can we avoid similar novel virus transmissions, and how did it spread so quickly throughout the world?
- **Exploring the health affects of Covid-19:** What are some of the viral affects and host immune system responses that are causing the varying symptoms of Covid-19? Is this infection primarily a respiratory or cardiovascular disease? What are some pre-existing health risks or life style choices that lead to more severe outcomes? Do different blood types pose different threats of COVID-19 progression? If so why? Tie some of these topics into the theory of Natural Selection – are some people better adapted to survive this pathogen? Have bats and other corona virus hosts evolved to survive this virus? What is the Red Queen Hypothesis and how does it relate to pathogen evolution and resistance?
- **Community connections:** What information was disseminated to the community during the start of the pandemic? Were there disparities in recommendations, community compliance, and opinions? If so, were these disparities based on geography, education, race, political preferences, or other factors? How well did our country responded to the spread of the virus in general compared to other top infected nations? If you were to give out recommendations to the country to stop the spread of the virus and disease what would your main messages be?
- **Racial disparities:** Are there disparities in the spread, testing, treatment, and death rates from SARS-CoV-2 by race? If so, how? How did the Black Lives Matter Protests in June 2020 affect the spread of the virus and COVID-19 cases? Did the police reaction to protestors in some cases (tear gas, incarceration, violence) affect the pandemic? How has our country responded to the increased cases of COVID-19 in the jails and prisons? How are refugees and immigrants detained in ICE and other detention facilities being treated and tested? What legislation would you propose to improve relations, conditions and equality in America? What are city, state and federal politicians doing in regards to racial disparities, white supremacy and police brutality in our country?
- **Scientific Research:** What are the different types of testing and how effective are they in detecting the virus and COVID-19? What are the different types of vaccinations and treatments being developed and tested? Are strategies such as testing and contact tracing effective to slow the spread of the virus? What are the most effective strategies being implemented to “flatten the curve” so far in the U.S. and around the world? Are health care professionals using the steps of the scientific method to answer questions about the virus? How? What % of the population needs to be resistant to the virus in order to acquire herd immunity? What are the best longterm plans for reaching our herd immunity goal?

• Ecology and Conservation Connections: How is the pandemic affecting anthropogenic climate change, pollution, wildlife exploitation, human population and carrying capacity around the globe? What legislation has been proposed to help our planet in response to this pandemic? What would you propose? What are some post-pandemic predictions? (What will our society be like after this event, we will learn from our mistakes? Will we be better prepared or educated in order to avoid future pandemics and become more respectful of our planet?) Discuss ecology and conservation issues related to this pandemic.

Reference suggestions for the research portion: (You can find many more references for your particular topics but here are a variety of articles to get you started. Don't forget to include your references in your "script" / research paper and please do MLA format, not just urls. (MLA format includes the article title, author, source, date AND the URL if you found it on-line – see the instructions on the link and below for examples of the right format)

MLA Citation instructions: <https://www.citationmachine.net/mla8/cite-a-website>

Let's Science up about Covid 19!! 4/28/20 Hosted by the Department of Biology SF State University

<https://www.youtube.com/watch?v=M9ILbwWU-z0>

The American Virus Eliot Weinberger, London Review of Books, Vol. 42 No. 11 · 4 June 2020

<https://www.lrb.co.uk/the-paper/v42/n11>

How We Broke The World Greed and Globalization Set us up for Disaster, Thomas L. Friedman, New York Times, May 30 th 2020, Opinion

<https://www.nytimes.com/2020/05/30/opinion/sunday/coronavirus-globalization.html>

How Corona Virus Hijacks Your Cells Jonathan Corum & Carl Zimmer, New York Times, Science. 3/13/20

<https://www.nytimes.com/interactive/2020/03/11/science/how-coronavirus-hijacksyour-cells.html>

Where Pandemics Come From and How to Stop Them. Extinction Countdown John R Platt, The Revelator, 3/23/20

From Bats to Human Lungs, The Evolution of a Corona Virus Carolyn Korman. The New Yorker 3/27/20

Bad News Wrapped in Protein: Inside the Corona Virus Genome – Jonathan Corum & Carl Zimmer. New York Times 4/3/20

Coronavirus May Be a Blood Vessel Disease, Which Explains Everything

Many of the infection's bizarre symptoms have one thing in common

Dana G Smith May 28 th 2020

<https://elemental.medium.com/coronavirus-may-be-a-blood-vessel-disease-which-explains-everything-2c4032481ab2>

Identifying airborne transmission as the dominant route for the spread of COVID-19 Renyi Zhang, Yixin Li, Annie L. Zhang, Yuan Wang, and Mario J. Molina PNAS first published June 11, 2020

<https://www.pnas.org/content/early/2020/06/10/2009637117>

Smoking Is Associated With COVID-19 Progression: A Meta-Analysis Roengrudee Patanavanich 1 2 , Stanton A Glantz 1 PMID: 32399563 PMCID: PMC7239135 DOI: 10.1093/ntr/ntaa082

<https://pubmed.ncbi.nlm.nih.gov/32399563/>

Tear-Gassing Protesters During An Infectious Outbreak Called 'A Recipe For Disaster' June 5, 2020 6:00 AM ET WILL STONE, NPR.org
<https://www.npr.org/sections/health-shots/2020/06/05/870144402/tear-gassing-protesters-during-an-infectious-outbreak-called-a-recipe-for-disast>

Open Letter from 1288 Physicians, health care workers, infectious disease professionals and community stakeholders supporting anti-racism protests:
<https://drive.google.com/file/d/1Jyfn4Wd2i6bRi12ePghMHtX3ys1b7K1A/view>

COVID-19 public health information from CDC: <https://www.coronavirus.gov> . Get the latest research from NIH: <https://www.nih.gov/coronavirus>.

Find NCBI SARS-CoV-2 literature, sequence, and clinical content:
<https://www.ncbi.nlm.nih.gov/sars-cov-2/>.

It Will Take More Than a Vaccine to Beat COVID-19 Vaccines are making progress, but they may not defeat the virus completely. Luckily, other therapies are on the way, too. Dhruv Khullar, September 8, 2020September 8, 2020

https://www.newyorker.com/science/medical-dispatch/the-state-of-the-fight-againstcovid19?utm_source=nl&utm_brand=tny&utm_mailing=TNY_Daily_090820&utm_campaign=auddev&utm_medium=email&bxid=5be9e2a624c17c6adf6cbcb5&cndid=49592294&hasha=62fc6abfabd1f51d0b6e42666ae64bab&hashb=de2b57f797aca918ae88bfa7add0d285d2b0b663&hashc=4614710ccdaa15c65ee30a8a854748fa770a8c27bc8ad1c664985074b8afbb71&esrc=AUTO_PRINT&utm_term=TNY_Daily

SF Covid Case Data: <https://data.sfgov.org/stories/s/adm5-wq8i>