## Website Narrative Draft Guidelines

*Due Monday, May 24 by 11:59 pm via CCLE*

**The draft should have:**

* A complete outline of the overall project with headings and subheadings/sections
* At least 1,000 words (half of your final project)\*
* Indication in brackets of where visualizations will go and what those visualizations will likely be. (You may wish to start drafting your visualizations captions as part of this exercise.)
* Indicate citations within your text. (If you’re quoting a book, article, or other source, make sure you cite it and be consistent in your citation format).

**Visualizations**

(will have captions explaining how to interpret)

* World Map: Prison + College Case Density
* Bubble Map: 2020 vs 2021 Monthly Case Rate within Colleges
* Boxplot: COVID-19 Deaths by prison compared to public by State
* Stacked Bar Chart: Prison vs Colleges Case Counts by State
* Pie Chart: Prison vs College Cases

**Outline**

(the bolded bullet points will be our subheaders and the nested bullet points indicate what we intend to discuss and flesh out as its own paragraph(s) within the subheader)

HOME PAGE

* Intro Statement (quickly signal what the project is about)
* Orienting paragraph (introduces what the project is, what the reader will find on the site)
* COVID-19 Timeline for context

NARRATIVE PAGE

* **Introduction**
  + General COVID-19 Context
  + Significance: exacerbated problem in prisons and college campuses as dense, enclosed networks/environments within larger society
  + Introduce research question and dataset data
* **Overview of COVID-19 in US Colleges & Prisons**
  + Introduce Map
  + [Include World Map: Prison + College Case Density]
  + Explanation
    - Comment on what map is telling us about COVID-19 across the country (e.g. hardest hit systems/areas in the US for either colleges or prisons, relative geographical density of institutions in each category, etc.)
      * isolate example data points - relate largest prison and college bubbles to actual institutions there to highlight these institutions are COVID-19 breeder areas
    - Tie back into research question (we see network of distinct enclosed environments with a large number of people that each suffered a particular impact on COVID, which is why our research q is relevant)
* **COVID-19 in Colleges**
  + set context with literature review (perspectives of scholars on college networks and COVID-19, reviewing rules & measures in college campuses)
  + [Include Bubble Map: 2020 vs 2021 Monthly Case Rate within Colleges]
  + Explain what visualization reveals, put in context of literature (does it contradict? does it support? does the literature suggest potential reasons for these outcomes?)
* **COVID-19 in Prison Facilities** 
  + set context with literature review (understanding prison health systems with COVID-19, scholarly information)
  + [Include Boxplot: COVID-19 Deaths by prison compared to public by State]
  + Explain what visualization reveals, put in context of literature (does it contradict? does it support? does the literature suggest potential reasons for these outcomes?)
* **Colleges vs. Prisons**
  + [Include Stacked Bar Chart: Prison vs Colleges Case Counts by State]
  + [Include Pie Chart: Prison vs College Cases]
  + compare case counts between prisons and colleges, scaled by population
  + examine implications of this vs. expectations from scholars/hypotheses from our group
* **Final Thoughts** 
  + both prison facilities and college communities prove to be COVID-19 superspreaders, prisons much more so than colleges percentage-wise
  + prisons are significantly worse at preventative care, though ultimately they prove to have similar health outcomes to public
    - also need better mental health care for both groups
  + next steps for prisons and colleges (vaccine distribution)

ABOUT PAGE

* Source, processing, presentation
* Team member and responsibility
* Acknowledgement of the help

DATA CRITIQUE PAGE

* **College Dataset (**from corrected milestone 4)
* **Prison Dataset** (from corrected milestone 4)
* **Additional Data** (from corrected milestone 4)

(for each section above, answer the below:)

* What are original sources
* Information Included in Datasets
* What info, events, phenomena can datasets illuminate
* What can dataset NOT reveal
* How was data generated
* What information is left out of spreadsheet
* Analyze ontology of dataset (ideological effects of encoding information from sources as data

BIBLIOGRAPHY PAGE

Well done – very clear outline!

**Introduction**

On March 13, 2020, the COVID-19 pandemic was officially declared a national emergency (Biden 1). Ever since, it has been a confusing and terrifying time nationwide, as the pandemic disrupted the normal way of life. Americans were asked to stay at home to flatten the curve and stop the spread. However, not every environment or job was equally adaptable or conducive to the recommended social-distancing required to prevent widespread infection or protect its people. In particular, COVID-19 poses a great threat to prison facilities and universities since both institutions inherently operate with dense and vulnerable populations.

Infection cases have been especially difficult to control in incarceration facilities where inmates are inherently confined in small cells where social distancing is not possible. Moreover, in his article *COVID-19 And Detention: Respecting Human Rights,* Amon remarksthat “staff arrive and leave, providing a link between the community and the detention center, oftenー because of limited testing and asymptomatic infectionー without adequate screening” (368). Incoming officers increase inmates’ risk of contagion since their interactions outside the facility may be the origin of the virus proliferating through the prison to begin with. Likewise, when officers go home, they risk endangering the health of those in their communities if there is an undiagnosed infection at their work. In prisons and jails suffering from the common issue of overcrowding, these health risks are only exacerbated.

Similarly, colleges are densely-populated communities with cramped dorm rooms, and congestion in the surrounding college town. Before the pandemic, universities regularly held classes with mandatory attendance, requiring students to congregate within the same room, at times in hundreds for large campuses. However, “in March 2020, U.S. institutions of higher education abruptly and almost universally shut down their campuses, shifted to online education, and sent residential students home in recognition that campuses were high-risk environments for COVID-19 transmission” (Lederer et al. 14). At the time, some students were still abroad on spring break and many more students studying abroad nationally and internationally also flew back home seeking comfort and safety with their families.

Upon first look, these two institution types vary vastly, though they both inherently foster environments that are heavily trafficked and densely populated. Therefore, these relatively more enclosed networks of people pose as concerning areas of mass contagion for COVID-19. As we analyze data on COVID-19 case counts and health outcomes for prison facilities and colleges across the nation, we wish to investigate how each institution type handles healthcare for their respective communities. Furthermore, if there are distinct differences, we wonder what this says about the way healthcare exists in the criminal justice system compared to a less-restricted environment like a college campus.

**Overview of COVID-19 in US Colleges & Prisons**

The impact of COVID-19 on these two distinct populations can be traced regionally. The map below reports the number of COVID-19 positive cases at institutions of higher education and incarceration by county. By mapping these numbers, we begin to get a better understanding of how institutions differ in both their risk level (explained, for example, through its population density) and their ability or initiative to take mitigation measures for the virus on a local level. This visual analysis can help determine any location-based patterns in the data, pointing out potential areas of systemic failures of care in these facilities, whether for prisoners or for students.

~~[Include Bubble Map: 2020 vs 2021 Monthly Case Rate within Colleges]~~

[World Map]

The single highest number of COVID-19 cases appears on a college campus, according to the map. However, the prison systems in each county, while exhibiting a significant degree of variance in COVID-19 cases in themselves, seem to be dealing with high numbers across the country. This is evidenced by how the orange locations on the map, while more evenly distributed, are even visible in lower case densities (smaller dots), while the lower range of case densities for colleges are smaller and more difficult to see. This seems to signal a greater variance in successful approaches to mitigation, or lack thereof, in college campus situations, and there appears to be a more general system failure on behalf of the prisons nationwide.

The colleges that reported their data tended to be situated on the East and West coasts, so the bubbles on these coasts account for an overwhelming share of the college COVID-19 densities. However, both on the East Coast and in the South, prison facilities seem to be reporting a holistic, pervasive COVID-19 outbreak. Again, it is important to note here that the cases in any one prison facility generally do not spike as high as certain colleges in the region—a difference between a few large blue bubbles and the “orange blanket” of prison facilities. Interestingly, in California, the situation as a whole appears to be worse for prison facilities, where many more moderate-to-large prison bubbles exist than the two large college campus bubbles in southern California. This aligns with the fact that California is the most populous state in the United States by a margin of more than 10 million people (Epstein and Lofquist), and while its incarceration rate is lower than the national average it is still higher than any country in NATO (Wagner and Sawyer)—in essence, it has a very large prison population.

Here, we see potential areas of failure in healthcare across most prisons, particularly in California. Perhaps more surprisingly, we also see major potential healthcare neglect occurring on select college campuses, with cases rising to comparable levels as prison systems and in some cases surpassing them (as in the case of East Coast states like Massachusetts, Rhode Island, and New Jersey). Both types of institutions function as dense networks in mostly enclosed environments, heightening the risk factor for COVID-19 outbreaks. It is clear that there is valid cause to investigate the nature and extent of health systems’ inability to deal with the virus in prison and college environments alike.

**COVID-19 in Colleges**

College campuses of various types all generally provide a small-world network environment with a high degree of clustering (in which members of the network tend to all know each other) and short path lengths through which one member (a student or a teacher) can reach another, whether through classes, majors or residential interactions. These enrollment contexts, in the wake of COVID-19, are quite dangerous, as they facilitate the spread of infectious disease (Weeden and Cornwell). In fact, ongoing research and data modelling has even suggested that campuses are at risk to become super-spreader environments without test-trace-quarantine infrastructure and local regulations (Lu et al.).

As a result, many universities transitioned to online instruction as one of their mitigation strategies to protect its communities. Other mitigation strategies with an assessed impact and proven cost-effectiveness to universities, such as social distancing and mask-wearing (Losina et al.), were also incorporated in university responses to COVID-19. However, how thoroughly these were implemented in practice, as well as their health outcomes, are silences in the research that makes it harder to judge the direct impact of these strategies. Below is a bubble map that helps assess the efficacy of these mitigation strategies on COVID-19 spread in these campuses between 2020 and 2021.

~~[Include World Map: Prison + College Case Density]~~

[Bubble Map]

This map shows the average monthly case incidence rate on college campuses broken up by US state, contrasted between the years 2020 and 2021. The first thing one may notice is that overall, campuses dealt with greater monthly COVID-19 cases in 2021 than in 2020, denoted by larger orange bubbles than blue bubbles. This trend may seem surprising at first, as one would expect mitigation measures to reduce COVID-19 transmission over time. However, considering the timeline of the virus in addition to vaccines for the virus, as COVID-19 cases have been reducing throughout 2021 as a whole, it is possible that these strategies’ enforcement may have gotten more lax over time. A variety of other possible factors may have impacted this general trend as well, such as more vaccinations in the populations leading to more mass gatherings (with possible asymptomatic infections), a higher percentage of students beginning to live on campus and interact with their college network, and even certain schools possibly having transitioned to hybrid instruction. With campuses resembling a small-world network, even minor changes in these directions can be amplified through highly clustered connections between people.

More specifically, certain states seemed to deal with consistently high COVID-19 cases. For 2020, the states with the highest amounts of college COVID-19 cases included Texas, Indiana, Ohio, and Florida. This assortment is notable due to their common weaknesses in state responses to COVID-19 state policy in all of these states was ordered around reopening the economy as soon as possible and rejecting mask mandates & lockdowns for a significant amount of time. In these states, by the time public health policy had become more stringent, case numbers had already blown up. In turn, this paints a picture of how campus case transmission may be shaped by the public policy of the state it resides in, and how that may reinforce shaping attitudes to COVID-19 on their campus. To what degree they determine and lead their own risk mitigation strategy, versus simply complying with however much the state sees fit to regulate public activity, becomes a relevant and pressing question here, particularly for an institution of higher learning that generally leads the way concerning scientific knowledge.

Comparing 2020 case numbers with 2021, some of the large players seem to have changed; Texas and Florida’s numbers are still high, but they seem to be joined by New York, California, Philadelphia, Massachusetts and Michigan, all of whose state policies have oriented themselves to public health guidelines like enforcing mask-wearing and social distancing. The commonality here could be as mentioned aboveー a larger percentage of students moving back into the small-world environment, etc. ー or it could reflect a public health failure of institutions in these regions to provide and enforce more consistent mitigation in the wake of rising vaccination numbers and decreasing COVID-19 cases nationally. It is possible that given their relative success initially in mediating the impact of the virus, college networks in these states became overconfident and subsequently more lax about COVID-19 protection. In highly clustered networks such as these, loosening their rules may have had a reverberating effect throughout each campus, raising case numbers overall. However, committing to one explanation is difficult if not impossible given the silences in the data regarding health outcomes.

**COVID-19 in Prison Facilities**

Even before the pandemic, the U.S. prison system suffered from significant flaws in overcrowding and racial bias. Although the country represents less than 5 percent of the world’s total population, it holds 20 percent of the world’s incarcerated people (Bradshaw 21). Furthermore, “the high rates of incarceration among Black, Latino, and Native communities map closely with the demographic pattern of (COVID-19) infections and … death” (Wang et al. 2257). Thus, it comes to no surprise that “by August 2020, 90 of the largest 100 cluster outbreaks” in the nation had occurred in prisons and jails (2257).  
  
[Include Boxplot: COVID-19 Deaths by prison compared to public by State]

Examining the boxplots to the left, the median percentages of COVID-19 deaths by state are roughly similar between the general population and prison population at 0.1700% and 0.1722%. However, the range of the boxplot for prisons is much greater, reaching a death rate of up to 0.4021%. Furthermore, while Hawaii has the lower minimum for percentage of COVID-19 deaths amongst the general population, its value is past the upper hinge for COVID-19 deaths amongst its prison population. Thus, there is a clear discrepancy for how states are enforcing and abiding by COVID-19 protocols in and out of the prison system.

In a delayed response, the Federal Bureau of Prisons and other states and municipalities suspended visitation by community members, limited visits by legal representatives, and reduced facility transfers for incarcerated people (Akiyama et al. 2076). However, evidently from the boxplots, there was not equal effort or levels of success across all states.

In particular, Michigan was the second-leading state in percentage of COVID-19 deaths within their prison population. Literature on Michigan’s prison policies reveal that the state had already had the longest average length of prison stay in the country due to an accumulation of its maximum penalties, harsh mandatory minimum terms, sentencing guidelines, and authority for consecutive sentencing (Bradshaw 26). In fact, Lakeland Correctional Facility in Michigan had the ninth largest known cluster of confirmed COVID-19 cases in the country and an infection positivity rate of 56% (19). Exacerbating the existing physical infeasibility of following social distancing, the Michigan Department of Corrections (MDOC) “continued to transfer prisoners between facilities even when they tested positive for COVID-19 or had been housed alongside someone testing positive” (29). For example, in one instance, MDOC staff discovered that 54 inmates had been given false negative results, while another 54 inmates had been given false positive results. As a result, those who were falsely identified as healthy remained amongst the facility's general population and those who were falsely identified as infected were moved to housing units specifically for those inflicted with COVID-19 to interact with afflicted inmates (29-30). These mislabeled inmates remained for many days before the error was identified, but by then the damage had already been done. Overall, inefficient management and a lack of urgency, prudence, and compassion precipitated prisons and jails as COVID-19 hotspots, unnecessarily and wrongfully endangering inmates' health and spreading the contagion across facilities.

**Colleges vs. Prisons**

The highly vulnerable and inherently closely-connected networks on college campuses and prison facilities have encouraged the spread of COVID-19 in both environments. Now, we can more closely investigate and compare COVID-19 case counts between these two institution types to uncover whether one fared better than the other.

[Include Stacked Bar Chart: Prison vs Colleges Case Counts by State] [Pie chart is included]

According to the stacked bar chart depicting raw data of COVID-19 case counts within college institutions and prison facilities by state, it appears that except for a handful of outliers including California, Oklahoma, New Mexico, and Nevada, the number of college COVID-19 was nearly equal to or outnumbered the number of prison COVID-19 cases. However, in the stacked bar chart depicting COVID-19 case counts with prison cases scaled up to equal populations, prisons outnumber college cases in every state, significantly so in many cases, particularly California, Texas, Michigan, and Florida. Considering California, Texas, and Florida have the three highest prison populations and given the previously discussed mismanagement and cluster outbreaks in Michigan, the outbreaks of COVID-19 cases within these states are alarming, but unsurprising (Kang-Brown et al. 6).

~~[Include Pie Chart: Prison vs College Cases]~~

Likewise, when analyzing the pie chart of percentage of COVID-19 cases between college and prison institutions, the raw data indicates that college cases account for roughly 59.4%, while prison data account for roughly 40.6% of cases. However, the scaled pie chart, which accounts for the imbalance in population size between the two institution types, reveals that COVID-19 is contracted at a much higher rate within prisons than universities. When prison cases are scaled up to match the population size of colleges, prison cases outnumber college cases by nearly eight-fold at 88.1% of cases compared to only 11.9%.

Using total population numbers for calculations, over a third (35.1%) of all prisoners contracted COVID-19, while only 4% of college students were inflicted (Kang-Brown et.al 6, *The NCES Fast Facts Tool Provides Quick Answers to Many Education Questions (National Center for Education Statistics)*.

One likely reason for the discrepancy between student and prison contagion could be the population demographic itself. In addition to inmates being disproportionately people of color, the same demographic that is more at-risk to severe symptoms of the virus, “nearly all chronic health conditions are more prevalent among inmates than in the general population” with an estimated 40% of all inmates having at least one chronic health condition. (Zaitzow and Willis 5). Thus, unlike the student population who are primarily at a healthy and resilient age, prisoners are at an even greater risk of severe symptoms of COVID-19 due to prevalence of pre-existing conditions.

Another implication of this drastic difference in scaled case counts is a lack of health care within prison facilities and the greater obstacles inmates must face to receive medical attention. Although U.S. prisons and jails are legally obligated to provide healthcare to inmates, the provision of health care in prisons varies, and “at best, it is about as good as a low-income health plan. At worst, it is almost nonexistent” (Zaitzow and Willis 6). For example, even before the pandemic, inmates are afraid to advocate for themselves out of fear of imposed isolation, which is seen as a form of deprivation. In an interview, one prisoner named Thomas explained, “Well they imprison you in some isolation (sickroom). That's the reason why the people are at the most ill for one day, they want to get out there again, you know” (Heidari et al. 225). Furthermore, even when the ailment is painful enough to justify seeking medical attention, staff urgency is rare and limited service hours provide another hurdle to accessing care. Another inmate Lara describes “Just saying: ‘I want it fast now, it's hurting me.’ […] No, no, that's not possible. You then have to draw attention to yourself, and it takes hours until anybody comes” (Heidari et al. 226). Thus, key differences in population vulnerability, as well as mental and systemic barriers to health care, account for the huge disparity between scaled case rates for prison and student populations.

**Final Thoughts**

The result of our data analysis and research confirm that the enclosed environments of both prison facilities and college communities prove to be vulnerable to fostering COVID-19 hotspots.

In particular, prisons have suffered at a comparatively higher rate due to an accumulation of existing sanitary conditions and confined spaces that made the necessary social distancing impossible, a population demographic whose racial profile and medical history renders them especially vulnerable, and an unreliable and abysmal health care system. The higher rate of infection paired with relatively equal percentage of COVID-19 deaths indicate that while colleges have fared historically better at preventative care than prisons, both institutions ultimately have relatively similar health outcomes and are able to provide similar treatment and medical attention after correct diagnosis.

To address this gap in preventative care, prison facilities may look to health and safety protocols implemented at their college counterparts. In a study entitled *College Campuses and COVID-19 Mitigation: Clinical and Economic Value*, the researchers concluded that a mandatory mask-wearing policy alone would reduce student and faculty infections by 53% to 56% and 64% to 66%, respectively (Losina et al. 479). “Combining a mask-wearing policy with extensive social distancing would prevent 87% of infections among students and faculty and would cost $170 per infection prevented”, the most cost-effective solution tested (481). In the study, extensive social distancing is defined as 100% of large classes and 50% of small classes taught online. Although the equivalent is not feasible in a prison setting, frequent testing is recommended as another effective, though more costly solution, delivering a 96% infection prevention rate (473).

Moving forward, the next step for both prisons and colleges to address their status as COVID-19 hotspots is vaccine distribution and mandatory inoculations. With the approval of at least three vaccines in the US, schools and prisons are now armed with a new tactic to improve the preventative care of their institution. With more vaccinated people in a community, the lower the number of COVID-10 cases, and therefore a lesser chance of the virus being spread to others. In institutions that foster or require congregate living like prisons and colleges, vaccinations are especially important and should play a crucial role in protecting the health of their members and eventually returning to normalcy.