

## **Student Perceptions on Variety of Class Types due to COVID-19**

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### **Abstract**

Due to the global emergency caused by COVID-19, starting March 2020, in-person college instruction at a teaching institution moved suddenly to full, 100%, online, which caused mixed feelings to both professors and students. Moving into fall semester, The Citadel took a significant number of COVID-19 preventative measures suggested by the Centers for Disease Control and Prevention (CDC) such as mask wearing and social distancing, and organized three types of classes; fully online, hybrid (online and in-person instruction), and traditional in class learning. Many students are currently enrolled in more than one of those class types. This paper describes those three class types during the COVID-19 pandemic and focuses on the opportunities and challenges of each from the students' perspective. The ultimate goal is to determine which pedagogical approaches are the most effective during a pandemic.

### **Keywords**

Online instruction, traditional in-person instruction, hybrid teaching, COVID-19

## Introduction

On December 31, 2019, the United States (U.S.) Centers for Disease Control and Prevention (CDC) was informed of a respiratory illness spreading in Wuhan, China<sup>1</sup>. Few days later, the World Health Organization (WHO) announced pneumonia from an unknown cause<sup>2</sup>, soon to be identified as novel coronavirus SARS-CoV-2<sup>3</sup> and eventually to be named COVID-19<sup>4</sup>, and advised against travel or gatherings<sup>5</sup>. On January 21, the first case of COVID-19 was reported in U.S.<sup>6</sup> and 11 days later, on January 31, the U.S. Department of Health and Human Services declared a public health emergency<sup>7</sup>. However, it took until March and in some cases April for individual states to respond and take disease preventive measures including social distancing and stay-at-home, except for essential traveling, orders.

In South Carolina (SC), starting March 2020 (9<sup>th</sup> week of classes), in-person college instruction at a teaching institution moved suddenly to full, 100%, online, which caused mixed feelings to both professors and students. Right after spring semester was over, The Citadel put together a taskforce to examine how to have safe and effective instruction in the following semesters during the pandemic. The taskforce investigated different options like continuing full 100% online instruction, returning to normal operations with some safety measures in place, or having a mix of online, hybrid (online and in-person instruction in a rotating basis for the students), and traditional in-person courses. In the last option, the class type would depend on the number of students in each course, the size of the classroom, and the health risk level of professors and students. Finally, moving into fall semester, the institution took a significant number of COVID-19 preventative measures suggested by CDC such as mask wearing and social distancing, and decided on offering three types of classes; fully online, hybrid, and traditional in class learning. Many students had to enroll in more than one of those class types. This paper describes those three class types during the COVID-19 pandemic and focuses on the opportunities and challenges of each from the students' perspective. The ultimate goal was to determine which pedagogical approaches are the most effective during a pandemic from the students' perspective.

## Class Types and Survey

In the fall semester, three class types were offered at The Citadel.

- 1) Fully, 100% online. Students had to attend the course only via the web. In this case, three types of instruction were offered, synchronous, where students attended classes in real time with the professor and the classmates present at the same time via Zoom, asynchronous, where the professor was uploading some kind of video lecture or voice over PowerPoint in the class website in Canvas and students had a week to review material and do their homework and answer to some question on a discussion board, and a combination of synchronous and asynchronous, where the professor was requiring students to attend certain classes live and others not. Weekly discussion boards were mandatory for all asynchronous courses to achieve some interaction amongst the students.
- 2) Hybrid. Utilization of both online and in-person instruction in a rotating, for the students, basis. Those classes were created to allow adequate social distancing in the classroom. Students in the course were split in two groups, group A and group B. One day, group A

was attending class in-person while group B was attending online and the next day, group B was attending class in-person while group A was attending online. In the hybrid courses, the professor was in the classroom for all sessions and had a zoom session open so students online could interact with him/her and their classmates live. The Citadel had to equip professors and classrooms with additional technology (tablets, cameras, etc.) to accommodate this class type.

- 3) Traditional in-person. All classes were offered live in the traditional classroom format. The only difference from any other semester was that students and professor had to wear masks and keep 6ft distancing so in-class group work was adjusted to follow those guidelines.

In order to capture students' perspectives on the different class types, a survey was distributed to the civil and environmental engineering student listserv, which includes freshman, sophomore, junior and senior students. The survey included ten questions on what types of classes students attended spring and fall 2020, which class type students enjoyed the most, which class type students felt helped them learn the most, which class type students would pick to attend if they had the option and why, and what students like the most and the least of each class type (online, traditional in-person, hybrid). The survey can be found in the Appendix. About 120 students were reached out at the last day of fall semester classes, from which 28 filled the survey. In the following section, the survey results are described.

## Results

From the students who responded to the survey, 68% had taken fully online courses, 71% hybrid, and 61% traditional in spring 2020 and fall 2020.

The majority of the students, 64.3% enjoyed the most traditional in-class courses, followed by hybrid with 21.4%, and lastly by online with 14.3%, refer to Figure 1. Even more students, 78.6%, declared that in-person courses helped them learned the most, as seen in Figure 2.

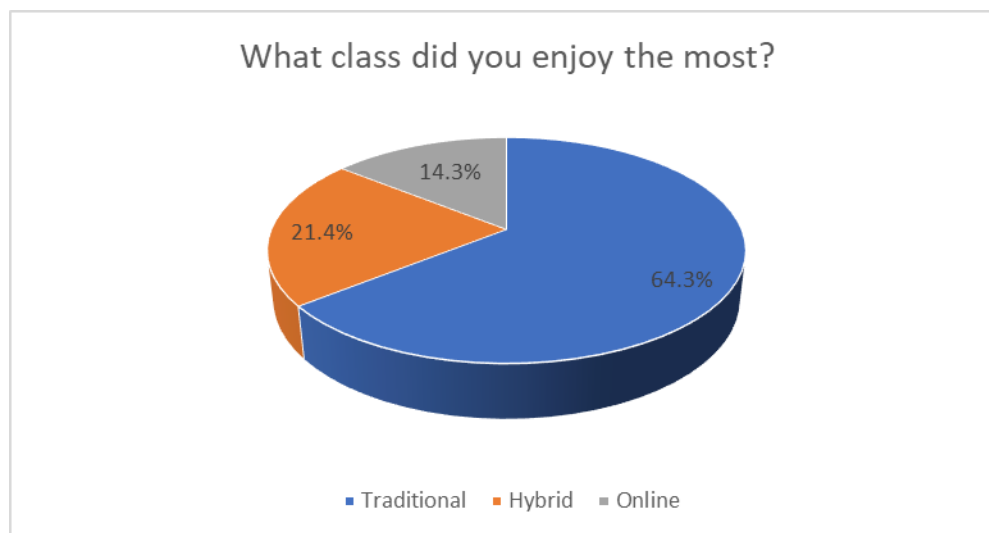


Figure 1: Class type students enjoyed the most

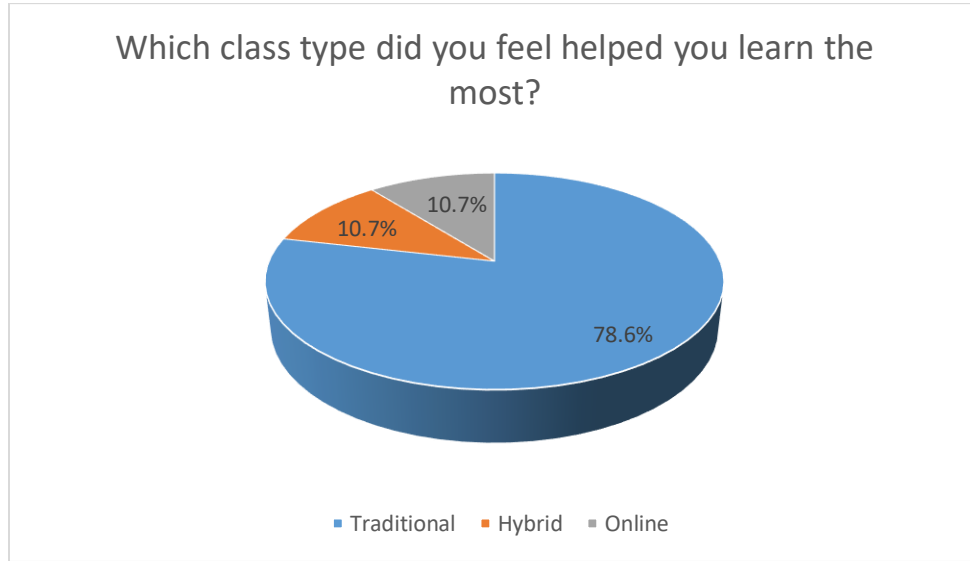


Figure 2: Class type that helped students learn the most

Figures 3 and 4 illustrate the pros and cons of fully online instruction and the percentage of students who recorded the certain pro and con. All in all, students reported that online classes are convenient, easy to access and navigate, provide availability of class recordings and some time savings since there was no need to commute to class. On the other hand, significant cons were the lack of interaction with the professor and students, technical difficulties, distraction and lack of focus, and difficulty to learn. Example student survey responses for pros include:

*“The fact that lectures were recorded and could be reviewed to clarify unclear objectives”. “I enjoyed the flexibility especially since I live off campus.”*

*“The time allowed to complete assignments, not having to commute to campus and spend the evening in the classroom, but instead pacing myself throughout the week to understand the material.”*

Example student survey responses for cons include:

*“Unable to develop a student-professor relationship. Some enthusiasm is lost online.”*

*“Lack of focus. It is really hard to establish a learning environment outside of class”*

*“Little to no involvement with the professor. Extremely low added value of taking the class respect to reading a book on my own. Actually I would have learned more if I had spent the same time self teaching me the subjects.”*

*“Cameras did not show very clearly what was written on the board”*

*“Hard to pay attention and internet issues”*

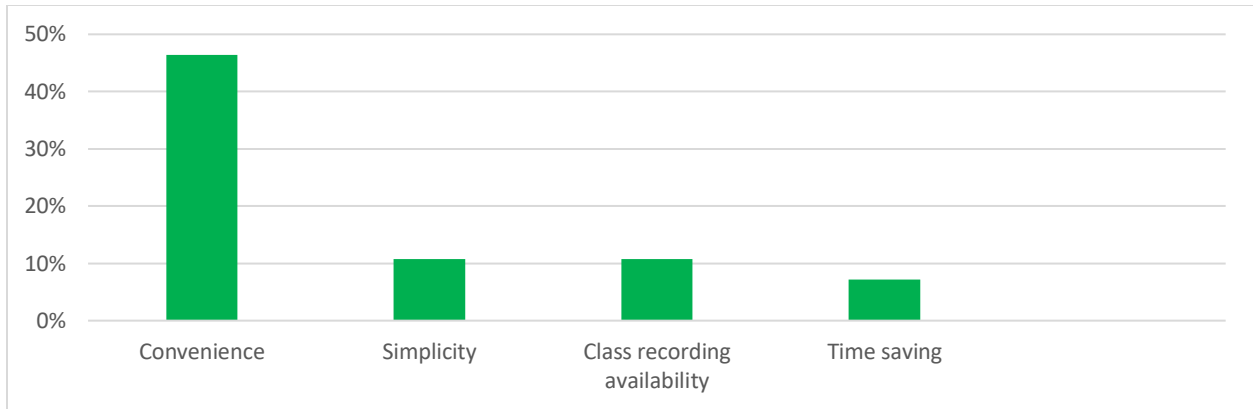


Figure 3: Fully online pros

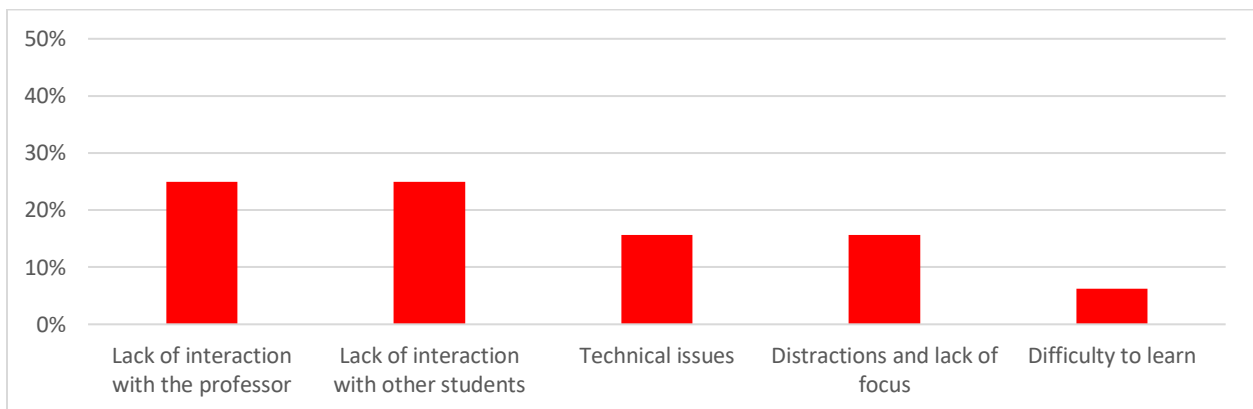


Figure 4: Fully online cons

Figures 5 and 6 illustrate the pros and cons of hybrid instruction along with the percentage of students reporting the certain pro and con. Students listed that hybrid classes include a balance of convenience and interaction with professor and classmates, have the benefit of class recordings availability, and are less monotonous. At the same time, hybrid classes are hard to schedule plus they have all the cons of the online classes. Student survey responses examples for hybrid classes pros include:

*“You get the best of both worlds. In person interaction and no pressure online”*

*“Could ask questions in person if needed”*

*“Missing a class for legitimate reasons meant you could still catch up easily”*

*“Allowed a lot of flexibility with not having to actually be in class to get a lecture. Also every lecture was saved and uploaded in the cloud so you could see it anytime”.*

Student survey responses examples for hybrid classes cons include:

*“I never got to interact with half of the class, and I always felt that I was playing catch up on the day that I was online”*

*“Seeing the board or hearing students questions were nearly impossible”*

*“Sometimes one class was online and the second was in person so I had to drive to school and wait an hour to attend the second class which was in person.”*

*“Not being in the learning environment on my zoom days and missing some things that were on the board or talked about not next to the microphone.”*

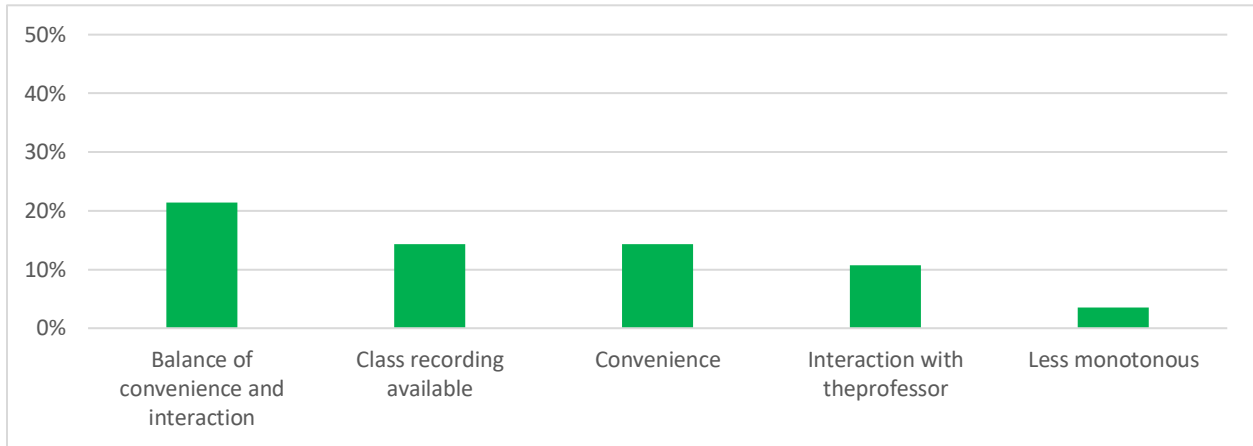


Figure 5: Hybrid pros

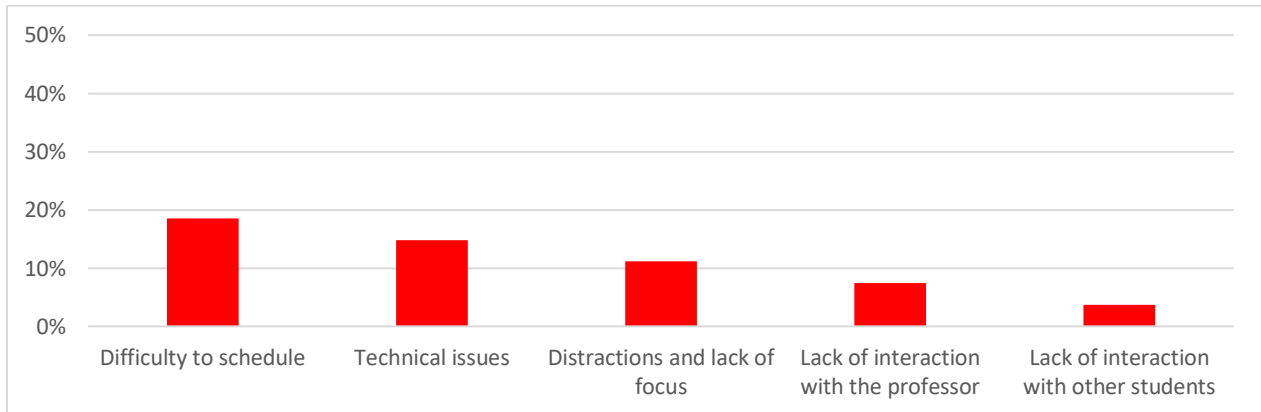


Figure 6: Hybrid cons

Figures 7 and 8 present the pros and cons of traditional in-class instruction along with the percentage of students reporting the certain pro and con. Students felt that traditional instruction helped them learn the most and interact with professor and students. They also said that are used to the style which helped with learning. However, classes were inconvenient, sometimes pace was low and more demanding. Interestingly, 25% of the students said that there is nothing negative about traditional instruction. Some student comments about traditional in-class instruction pros include:

*“You pay attention more, learn more, and do not have any distractions around you because you are in a learning environment.”*

*“It is the way I always learned. I spent years establishing an effective way to pay attention and focus. I have more accountability in paying attention.”*

*“It is a placeholder in the personal agenda that guarantees you will have to spend time on the subject. The intake from the class increases as you can interact with the instructor and the rest of the class in person.”*

*“Consistency and less confusion”*

Examples of traditional in-class instruction cons include:

*“Having to spend too much time on a certain class subject”*

*“Professors take forever to return papers and assignments back. Online for some reason seemed faster. Like next day faster instead of a week or two”.*

*“Commute to campus”*

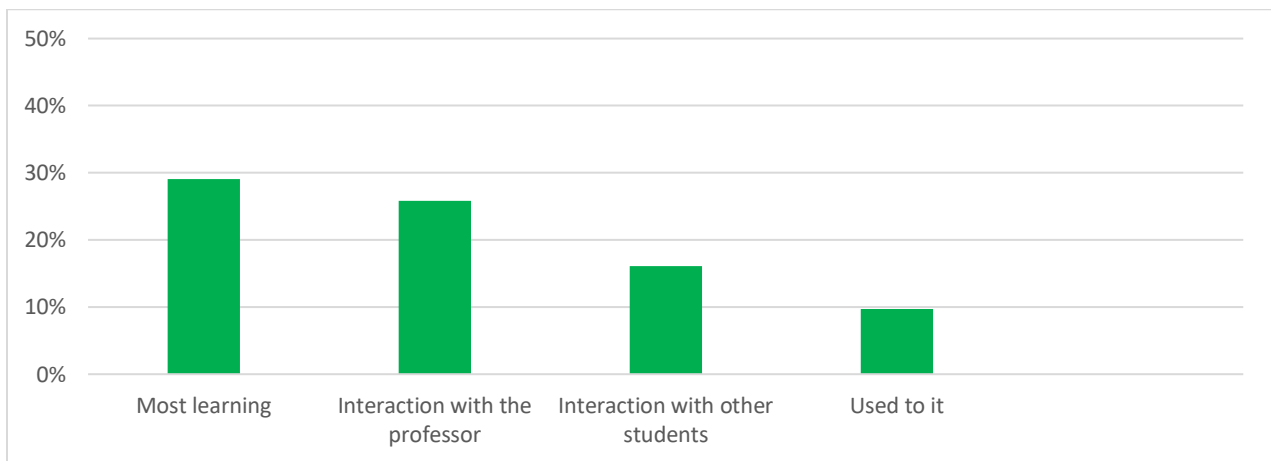


Figure 7: Traditional in-person pros



Figure 8: Traditional in-person cons

## Conclusions

Based on students' responses, traditional-in-person classes are strongly preferred. The majority of students significantly value the live interaction with the professor and classmates, the evident amount of work put forward by the professor in the traditional in-class setting, and how much knowledge they gain. On the other hand, students find online classes convenient and flexible but lacking interaction and connection with the professor and classmates, as well as in-depth presentation of course topics. Studying students' answers shows that professors teaching online should include mandatory live sessions to mitigate the lack of in-person interactions. Also, traditional in-person instruction can benefit from recording the lecture and provide it to students so they can refer to it later on.

## Future Work

The research team intends to repeat the study in more depth at the end of spring 2021 semester since the same three class types will be offered then. Questions about student's year of study, the type of online course (synchronous, asynchronous or combination) students are attending and the specific learning techniques that helped students learn the most will be added to examine if certain student groups favor one class type versus another and what techniques can be added to online instruction to make more acceptable and fruitful for the students. It will also be interesting to see if students' perceptions changed after gaining more experience with online and hybrid classes.

## References

1. Patel, A., and D.B., Jernigan. Initial Public Health Response and Interim Clinical Guidance for the 2019 Novel Coronavirus. Centers for Disease Control and Prevention (CDC). <https://www.cdc.gov/mmwr/volumes/69/wr/mm6905e1.htm> Accessed July 31, 2020.
2. Pneumonia of unknown cause – China. World Health Organization (WHO). <https://www.who.int/csr/don/05-january-2020-pneumonia-of-unknown-cause-china/en/> Accessed July 31, 2020.
3. Zheng, J. SARS-CoV-2: an Emerging Coronavirus that Causes a Global Threat. *International Journal of Biological Sciences*. 2020; 16(10): 1678–1685. Published online 2020 Mar 15. doi: 10.7150/ijbs.45053
4. Naming the coronavirus disease (COVID-19) and the virus that causes it. World Health Organization (WHO). [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it) Accessed July 31, 2020.
5. WHO advice for international travel and trade in relation to the outbreak of pneumonia caused by a new coronavirus in China. World Health Organization (WHO). <https://www.who.int/news-room/articles-detail/who-advice-for-international-travel-and-trade-in-relation-to-the-outbreak-of-pneumonia-caused-by-a-new-coronavirus-in-china> Accessed July 31, 2020.
6. First Travel-related Case of 2019 Novel Coronavirus Detected in the United States. Centers for Disease Control and Prevention (CDC). <https://www.cdc.gov/mmwr/volumes/69/wr/mm6918e2.htm> Accessed July 31, 2020.
7. Trump Declares Coronavirus A Public Health Emergency And Restricts Travel From China. National Public Radio (npr.org). <https://www.npr.org/sections/health-shots/2020/01/31/801686524/trump-declares-coronavirus-a-public-health-emergency-and-restricts-travel-from-c> Accessed July 31, 2020.



## Appendix

# Class Types

This survey is about student perceptions on the different class types offered in 2020 due to COVID-19 pandemic. Answers will remain anonymous.

\* Required

1. What types of classes did you attend spring and fall 2020 semesters? Select all that apply \*

*Check all that apply.*

- Fully Online  
 Hybrid (online and in-person instruction)  
 Traditional In-class

2. Which class type did you enjoy the most? \*

*Mark only one oval.*

- Fully Online  
 Hybrid (online and in-person instruction)  
 Traditional In-class  
 Other: \_\_\_\_\_

3. Which class type did you feel helped you learn the most? \*

*Mark only one oval.*

- Fully Online  
 Hybrid (online and in-person instruction)  
 Traditional In-class  
 Other: \_\_\_\_\_

2021 ASEE Southeast Section Conference

4. What did you like the MOST about fully online courses?

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5. What did you like the LEAST about fully online courses?

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6. What did you like the MOST about hybrid courses?

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7. What did you like the LEAST about hybrid courses?

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8. What did you like the MOST about traditional in-class courses?

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9. What did you like the LEAST about traditional in-class courses?

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10. If you were to pick the class type to attend, which one would it be? Why?

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Dimitra Michalaka, Ph.D., P.E., is an associate professor in the civil and environmental engineering (CE) department at The Citadel, the Military College of South Carolina (SC), U.S.A, the Associate Director for the Center for Connected Multimodal Mobility (C<sup>2</sup>M<sup>2</sup>), and a register professional engineer at the state of SC. She received her undergraduate diploma in civil engineering from the National Technical University of Athens in 2007. Shortly thereafter she moved to the United States to pursue graduate studies at the University of Florida. She graduated with a M.S. in CE in 2009 and a Ph.D. in 2012. Dr. Michalaka is passionate about teaching in college and K-12 levels and conducting research in both transportation engineering, focused on traffic operations, congestion pricing, and traffic simulation, and engineering education. She is also recently, in December 2020 graduated with a Master of Science degree in Project Management from The Citadel.

### **Emanuele Giogli**

Emanuele Giogli is the Coordinate Measuring Machine (CMM) manager at Volvo Car US Operations, Inc. Emanuele received his undergraduate diploma in Mechanical Engineering from University of Bologna in 2012. Right before graduation, Emanuele completed a six months study abroad program at University of Florida on autonomous vehicles. After graduation, Emanuele worked at the Italian automotive company Tiberina Group as a project engineer. In 2015, he moved to United States, where he got his Master of Science in design and manufacturing at Clemson University in December 2016. In March 2017, he started his career in the American automotive industry as Geometry Engineer for Volvo Car US Operations, Inc. In 2018 he got promoted to Body In White Geometry Leader and in 2019 he was advanced to his current position. In December 2020 Emanuele completed a Master of Science degree in Project Management at The Citadel. In January 2021 he was entitled Geometry Department Manager ad interim.