



**PUBLIC HEALTH
EDUCATION ARTICLE**

Development and Delivery of a Novel Interdisciplinary Online Course Focused on Pandemics and COVID-19

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ABSTRACT

Misinformation regarding COVID-19 has clouded the judgment and perspectives of many individuals. At Ohio Northern University, an interdisciplinary online elective course was developed to allow students the opportunity to gain evidence-based insight about the far-reaching implications of pandemics, with a specific focus on COVID-19. This course is open to any undergraduate student at the university without any prerequisites; however the majority of enrolled students come from the pharmacy and nursing programs. This paper describes the development, delivery, and assessment methods of this course. Course evaluation and modifications have allowed this course to evolve over time and remain a well-enrolled course at Ohio Northern University.

Keywords: Interdisciplinary education; Pandemic, Online course design; Misinformation, Public health education, Pharmacy professional elective

INTRODUCTION

During the COVID-19 pandemic it became apparent that there was a dire need for public health education. After the discovery that SARS-CoV2 presented a global health emergency, citizens of the world were searching for answers in order to understand and better protect themselves from COVID-19. Early in the pandemic there was an emphasis on preventing transmission of the virus and it was evident that governmental and policy responses to the COVID-19 pandemic varied greatly.¹ Additionally, medical misinformation spread easily during the COVID-19 pandemic. This created challenges with conveying public health messaging and led to distrust of health care providers and the government.² The desire to dispel common myths and provide evidence-based information to our campus community was the goal of developing a course focused on understanding pandemics, with a focus on COVID-19. Universities and colleges with public health programming are an ideal setting to research and educate about this pandemic. Students represent a captive audience with potential to learn from the

pandemic in real time and benefit from insights across various different disciplines

An interdisciplinary approach has been proposed as an ideal method to research COVID-19.³ Scientific collaboration allowed COVID-19 researchers to evaluate various factors that facilitated management of challenges associated with the COVID-19 pandemic and, hopefully, prevent similar pandemics. Likewise, interdisciplinary education draws on multiple disciplines to acquire a deep understanding of complex issues.⁴ The desire to provide pandemic-related content from various angles in an accessible, online format inspired the development of an elective course at Ohio Northern University, an independent, comprehensive university located in rural northwest Ohio. The course, offered through the Rudolph H. Raabe College of Pharmacy, is open to any student enrolled in one of the university's undergraduate programs: Arts & Sciences, Business; Engineering, Pharmacy. The purpose of this paper is to describe the development and ongoing evolution of an online, elective course focused on the COVID-19 pandemic.





Standardized university course evaluations are reviewed each semester. These evaluations are not mandatory; thus, the overall response rate has been low, ranging from 14%-52% of enrolled students over the 5 semesters it has been offered. The most useful aspect of these evaluations has been the open response boxes which have assisted with course modification. In addition to the university course evaluations, each semester students are invited to complete an instructor-developed evaluation of the course which asks questions about the various blocks of content, panel discussions, projects, and allows for narrative comments as well. Feedback from these evaluations have led to changes such as adjusting the length of each block, allowing students to select their own groups for group projects, and modifying assignment due dates.

Lessons Learned

The course has been open to 50 students each semester it has been offered. It has been well enrolled, often reaching the enrollment cap and occasionally allowing students to enroll on an overload basis into this course. This illustrates a strong interest and demand for this type of an elective course. However, there have been several areas for improvement identified. Some of these course modifications have already been implemented and additional areas may be addressed in the future.

The online nature of this course, along with the involvement of multiple instructors has led to some inconsistency with course communication and student awareness of expectations. To address this, the course coordinator now offers a live, virtual course overview during the first week of the course. This is recorded and posted to the LMS. Additionally, an announcement is sent out at the beginning of each week alerting students of any new content posted, as well as any upcoming assignment due dates. Grading rubrics for group projects and any written assignments are posted to the LMS, along with assignment instructions.

Another challenge that has been faced includes recruiting diverse panelists with experience and background that supports the content students are learning. The virtual panel discussions occur during the content blocks focused on public health, the health care response, and education. Panelists have been invited based on relationships they may have to instructors in the course. Because these panels occur in the evenings at 7:00 PM EST, there can be challenges in availability of panelists. We have also encountered situations where certain panelists have dominated the conversation. Recruiting panelists continues to be a challenge, but through early invitations and additional networking we have been successful in hosting all panels in the course. To allow all panelists to contribute to the conversation, the moderator has been able to direct certain questions to specific panelists.

Another lesson learned is that this course needs to remain adaptable in the event of instructor turnover. Due to faculty leaving the university, the course has experienced the loss of 2 instructors

since its creation. We were able to find replacements with minimal impact to the overall course structure. Some of these modifications allowed for new instructors to add content in their areas of expertise (medical misinformation and disinformation) and allowed for the addition of the final block of the course (The Impact on Education).

A final challenge we continue to encounter is the lack of diversity within our learning community of students. The majority of students enrolled in the course are pharmacy students, followed by nursing students. A very small number of non-health care majors have taken this course. An area that could be explored includes broadly disseminating information about this course to the entire campus community. Another opportunity would be working with other colleges on campus to see if this course would meet any specific needs of their students. A specific example of this would be adding this course to the allowed electives for the public health minor.

PUBLIC HEALTH IMPLICATIONS

The intent of this course is to educate students about the complex impacts of the COVID-19 pandemic. Living through a pandemic and reflecting on what was done well and what could have been done better will hopefully leave students prepared to face similar challenges in the future. There were significant advances made in the areas of health care, but there were also areas where it was clear that the efforts fell short of what was expected and needed. One example that was discussed in various ways in all 5 content blocks was the impact and understanding of vaccine recommendations. Combating vaccine misinformation and disinformation through public education and funding is critical to life in a post-COVID-19 pandemic era. Better forms of communication to the public are essential to increasing the uptake of new vaccines, as well as knowledge about the proper actions to take to slow the spread of diseases.

This course was able to provide students with evidence-based information regarding the COVID-19 pandemic, opposing the misinformation and disinformation consumed by society. It remains a viable course offering to ensure we learn from the recent history of the COVID-19 pandemic, especially given the prevalence of "pandemic fatigue" as the world moves into a post-COVID-19 pandemic era. Pandemic fatigue is defined by the WHO as distress that can result in demotivation to follow the recommended protective behaviors, emerging gradually over time and being affected by a few emotions, experiences, and perceptions.⁷ Findings indicate that pandemic fatigue emerged early in the pandemic and continues to be prevalent as evidenced by impacts on mental health, social well-being, and economic factors.⁸ This course aims to provide enrolled students with a perspective that will allow them to face the challenges we continue to see as a result of the COVID-19 pandemic, as well as be prepared to face similar health emergencies in the future.

