Moving the human biology program from face-to-face to online delivery mode in the time of COVID-19

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Abstract
Following the COVID-19 lockdown, the BSc in Human Biology Program of the University of Nicosia switched from face-to-face to online delivery mode. Herein we describe how we identified and managed the challenges that arose to successfully complete the Semester.

KEYWORDS
COVID-19, distance learning, face-to-face, Human Biology Program

1 | INTRODUCTION

The BSc in Human Biology program of the University of Nicosia is normally delivered face-to-face and is attended by students from around the world. The program aims to provide general education in molecular, cellular, and whole-body biological processes, and the technologies used to study them, in health and disease. The program includes both lecture and laboratory components. Among the strengths of the program is the incorporation of problem-based learning (PBL), as well as a thesis project that may be research or literature-based. Following the COVID-19 pandemic in early 2020, we switched to remote delivery. To tackle this challenge, we (a) identified and implemented teaching adaptations, (b) trained the trainers, and (c) adopted new assessment methodologies.

2 | PROGRAM COORDINATION

To ensure effective management of the pandemic, University directives were communicated as shown in Figure 1.

The Human Biology program faculty had daily communication through Microsoft Teams and e-mail. We also held weekly online meetings to ensure consistency in our management plan and information conveyed to students. This was very important, especially in the initial stages, when both faculty and students received a lot of information from different sources. Outlined below are changes we made to specific components of the Program.

2.1 | Lectures

Our University has a strong infrastructure in Distance Learning and was able to immediately convert face-to-face lectures to online synchronous lectures via the WebEx platform (https://www.webex.com/). This expertise was immediately disseminated to faculty, who received online training on using existing platforms (Moodle and WebEx). Lectures were recorded and made available for asynchronous access by students in different time-zones, as well as for students that had connectivity issues. Every effort was made to maintain similar strategies to face-to-face teaching using a variety of technology tools; however, not all face-to-face teaching approaches are transferable to online classes, so several modifications were made.1 Those included (a) using appropriate videos to stimulate active processing of information, either by student discussions or writing a brief essay, (b) live chat that allowed for questions or replying to in-class problems, (c) live polling to test comprehension and attention levels (using WebEx or external tools like Kahoot), or (d) asynchronous Q&A forums. Notably, course content, learning outcomes, and PBL sessions were not affected by the transition.
2.2 | Distance learning laboratories

Perhaps the most challenging aspect of this transition was tackling the laboratory component. Emphasis was placed on learning objectives (theoretical, analytical, and practical) and alternative methods were suggested to achieve them. Some labs had already been performed face-to-face while the rest were delivered virtually using: (a) prelab lectures, (b) the virtual lab platform Labster (https://www.labster.com/) (faculty received training on how to incorporate and ran Labster), (c) demonstration videos (either recorded in our labs or obtained online), and (d) analysis of experimental raw data including basic statistical tests. For practical skills that could not be covered using virtual labs, a plan was devised for future hand-on training, as soon as conditions permit it.

2.3 | Student thesis

Literature and questionnaire-based theses were not affected and students were able to continue collecting data online. Lab-based research projects that had already obtained some data were supplemented with a literature-based component. Students’ thesis presentations will be performed remotely using WebEx.

2.4 | Assessment methods

Evaluation of students’ performance was carried out by a variety of methods including written or oral assignments and case studies. The major changes came in the final assessment options that included: (a) a traditional exam using online invigilation (Proctorio platform, https://proctorio.com/), (b) a recorded 30 min oral examination or (c) a take-home exam.

3 | CONCLUSIONS

The transition from the face-to-face environment to the distance-learning environment requires careful planning and management to make sure that the learning objectives are delivered effectively to students. The lab component presents the biggest challenge and some hands-on, supplementary, training might still be necessary. Since the literature suggests that, a combination of hands-on and virtual labs works best our recent experiences will certainly be useful in the future. Despite the limited amount of time given, cautious planning and management enabled us to complete the Spring semester of 2020 successfully.

CONFLICT OF INTEREST

The authors declared no potential conflict of interest.

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