

# Impact of Lecture Duration on Infection Rate

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## Abstract

Previous analysis of potential post-lockdown university class lengths suggests a larger number of shorter lectures (3 x 40mins vs 1 x 2 hours) may reduce the risk of airborne Covid-19 transmission. However, if cross-class contamination is taken into account this short-class advantage is reduced or reversed and furthermore may lead to infection patterns that are harder to control. This adds to other reasons why fewer longer classes may be preferable.

**Keywords:** Covid-19, coronavirus, university return, mathematical modelling, airborne transmission

## Background and Introduction

Unlocking Higher Education Spaces [ULHES], the working paper of Virtual Study Group of the Virtual Forum for Knowledge Exchange in the Mathematical Sciences covers a wide variety of areas, one of which concerns 'building level topics' including the optimum size of classes. The first element of the risk analysis is an analysis of the impact of class length on transmission due to airborne disease quanta and concludes that for small classes in large socially distanced lecture theatres several shorter classes are better (in terms of reduced transmission) than a single longer one. The analysis compared 40 minutes, vs 1 hour and 2 hour lectures. This analysis is countered by other effects (cross class transmission due to surface contamination, increased movement between classes). However, even the airborne transmission calculations assume initially clean air, and neglect cross-class air-borne transmission. Shorter classes mean more classes need to be scheduled per day and hence less gap time between classes, the shorter gaps and increased number of switches both serve to increase transmission risk, further strengthening the case for fewer longer periods.













