Invigilated Online Examination: Measures to Mitigate Risks

In the document "Suggestions and Tips for Online Examinations", we have provided various possible solutions on conducting invigilated online exams using the technology tools available in CUHK as of February 2022. We have emphasized that it is challenging (and even risk due to unexpected system and hardware failure) to invigilate an exam online, so you should design carefully, practice beforehand, and develop a back-up plan in case things go wrong. This document aims to suggest measures to mitigate risks that may happen during online exam.

Be reminded that the University recommends exams without invigilation over exams with teacher's self-arranged invigilation for many reasons, for example, students are not familiar with the exam format or they do not have the required equipment and space. If you decide that an exam with invigilation is necessary, explain the reasons to students and listen to their concerns in an open and understanding manner. Try to work out a way that works for everyone.

1. When planning an online exam
- Try to use the equipment that is easily accessible to students. If your exam requires a software that is not supported in CUHK, consult ITSC about technical advice and assistance. If it requires a special equipment (e.g. experiment tools), consult the department/faculty/library and see whether it can be lent to your students and suggest a feasible way for delivery.
- After you decide on the exam format, check with students whether they have the required equipment (e.g. webcam, microphone, computer, software, etc.). Consider running a short survey 3-4 weeks before the main exam to understand what difficulties students may encounter if the exam is conducted in the way you design it to be. Try to address their concerns and allow enough time for them to get the equipment needed.
- Provide detailed instructions to students about how the exam will be carried out, e.g. what equipment is needed, how to use the equipment properly, what difficulties/ software bugs they may encounter and how to solve them, whom to contact when trouble occurs. Consider providing written guidelines or a handbook to students to get them prepared. Ensure that students are well informed about the official rules to be observed in taking online course examinations issued by Registration and Examination Section (RES) and the consequences of violating such rules.
- Provide your and/or your TA's contact information to students so that they can report any abnormalities immediately and get help during the exam. You should also collect your students' direct contact information (phone numbers) so that you can reach out to individual students when needed.

- Prepare a mock exam/exercise as soon as possible to verify that your design works and all students can complete the exam/exercise in the expected manner (more information below).

- Prepare a back-up plan (e.g. switch to other proctoring tools, other forms of assessment suggested in Section 3 of "Suggestions and Tips for Online Examinations") for your mock exam/main exam in case it does not go as planned (more information below).

- Prepare for a make-up exam in case unexpected problems occur in the main exam (more information below).

2. When conducting a mock exam

- Conduct a mock exam at least two weeks before the main exam so that you have enough time to identify potential problems and tackle them.

- Make the mock exam as similar as possible to the main exam, including the exam settings (same equipment/ software), sequences (taking attendance, starting the exam, submitting answers, etc.) and exam types (MCQs, short questions, essays, etc.).

- Try to figure out the source of the problems. If it is about system malfunctions, consult ITSC how to avoid them. If it is about the equipment used by students (their internet, computer, webcam), advise students to repair it, buy a new one or offer other assistance if needed.

- If the problems remain, execute the back-up plan (e.g. exam without invigilation as it requires less digital literacy skills) and spare enough time to test its feasibility.

3. When conducting a main exam

- Allocate enough manpower because more than one student may encounter difficulties and ask for help.

- Assign one or two teachers/TAs who are technically-able to take care of back-up activities.

- During the exam, if students report that they have a hardware problem (e.g. webcam/ computer is not working) or cannot get access to the internet, ask the affected students to record the problems they encounter (e.g. capture their screen, take pictures or videos) as proof for follow-ups. If appropriate, execute the back-up plan or arrange a make-up exam for the affected students. However, if you have sufficient evidence to believe that the alleged problems are fake, talk to the students and listen to their explanations. Report the case to the related disciplinary committee if it is deemed necessary.

- If students report that they encounter a software problem (e.g. Blackboard, Zoom, Respondus, uRelpy etc.), try to find the solution using the following guides:
  - Blackboard
  - Zoom

- ■ [Respondus LockDown Browser + Respondus Monitor](#)
- ■ [uReply](#)

If the problem persists, call ITSC eLearning support hotline for teachers and supporting staff (3943 3901, office hours only) for immediate support. Send relevant email (such as error screens) to elearning@cuhk.edu.hk.

- Unlike in-hall examinations, it is more difficult to tell if a student is cheating on the exam because even two webcams may not sufficiently show their surroundings (see Figure 1 below). The video quality may not be clear enough. Therefore, if you identify questionable behaviors (e.g. student leaving the camera frame without notice), communicate with the suspected students first and understand what happened. If you consider that it really is an offense of academic dishonesty using your professional judgement, follow "Guide for teachers and departments in handling cases of academic dishonesty" and report the suspected case.


Figure 1. Even having two webcams with front view (photo 1) and side view (photo 2) may not adequately show a student's surrounding. An invigilator will not know that a student is actually using multiple devices (photo 3).

4. When conducting a main exam using Blackboard+ LockDown Browser (and Respondus Monitor)

- See the tips and suggestion in Section 1.2 of "Suggestions and Tips for Online Examinations".
- Allow extra time (about 10 minutes) for students to launch the exam through the application, set up the webcam and do the webcam check.
- If students report right after the exam start time that they cannot operate the LockDown Browser, check with the affected students whether they have already installed the application in their computer and opened the exam through the app.
- If the problem persists, you may ask the affected students to do the exam on Blackboard

and use Zoom as a proctoring device (See Section 3.1 of "Suggestions and Tips for Online Examinations" for instructions.). For this to work, you have to set up an identical test (but not requiring Lockdown browser) beforehand, hide it to all students and then adaptively release this test to the affected students after they join the Zoom meeting.

- After the exam, you can check the reports (find them on "Course Tool" > "Respondus Lockdown Brower" > find the test and click "Class results"). The system will flag suspicious behaviors for your review. The example below indicates that this student has low facial detection, meaning that she may leave her computer at some point during the exam. However, such problem may occur for many reasons, for example, insufficient lighting or improper positioning of the webcam. Talk to the student as soon as possible and have him/her explain what happened before you decide to report the case to the disciplinary committee.
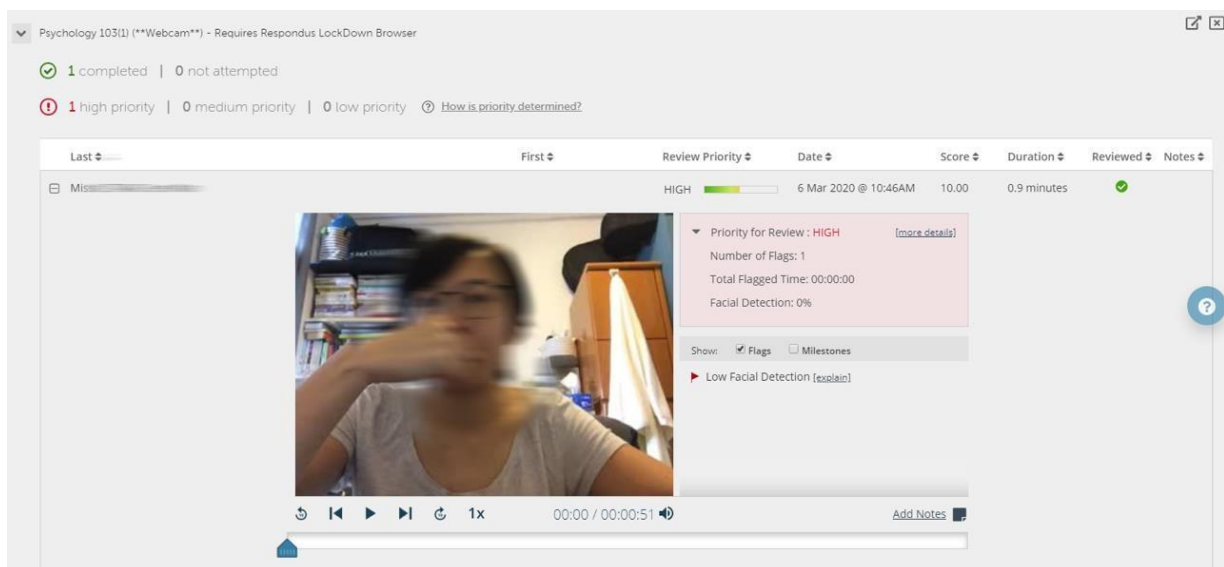
5. When conducting a main exam using Zoom

- See the tips and suggestions in Sections 1.3 and 1.4 of "Suggestions and Tips for Online Examinations".
- Ask students to go to the Zoom room 15-30 minutes before the exam start time for taking attendance, checking the equipment and setting up the phone camera.
- By default, Zoom Gallery displays up to 25 participants on each screen. Depending on your CPU, you can display up to 49 participants in a single screen of the gallery view (see how to set up here). We suggest that you assign one invigilator to watch 25 students to make the invigilation more effective. Ensure that all invigilators have assess to a large computer screen and stable internet connection.
- Enable focus mode in Zoom to protect student privacy.
- Students may leave the Zoom room accidentally because their phone runs out of battery. Before the exam, remind students to fully charge their phone to avoid the problem. You

may advise students to open the Zoom meeting using their computer as well and turn on the speaker. So, if there is anything wrong, you can call on the students to check if they have a problem.

- If the students leave the Zoom meeting entirely (through their phone and computer), there may be a connection problem. Call the students and check if they can fix the internet access immediately.

- If you identify some questionable behaviors, try talking to the student immediately in a nonthreatening manner and explain that you have noticed some behaviors that could be construed as cheating and ask him/her to stop. Also, we recommend that you record the meeting in case of any disputes.

Considerations for a make-up exam

- If a disruption occurs and lasts for more than 15 minutes or so (depending on the length of the exam), you should consider providing the affected students with an option of taking a make-up exam, if appropriate.

- The make-up exam should be carried out as soon as possible so that the affected students will not enjoy a much longer time for exam preparation.

- To avoid cheating (e.g. sharing answers), the exam paper used in the make-up exam should be different from the original one.

- To ensure fairness, the make-up exam format and settings should be the same as those of the main exam.

- If the same exam format cannot be used in the make-up exam due to technical difficulties, consider asking the students to record themselves doing the make-up exam at home and provide the recording to you.

6. Additional Resources

- There is no perfect solution in ensuring academic honesty in online exams. Check out this document by ITSC to inform teachers about common types of dishonesty/cheating and how to deter them. (CUHK staff only)

- For a list of digital assessment and invigilation tools currently available at CUHK, check out this presentation (p.4-5) by ITSC (updated as of 21 Feb 2022).

*The document is prepared by Centre for Learning Enhancement And Research, CUHK. Discussions on this version of the document are confined to technology available to CUHK teachers as of February 2022. For any technical questions regarding Zoom, Blackboard, Respondus software, please contact elearning@cuhk.edu.hk. For other questions that involve uReply and assessment strategies, please contact us at clear@cuhk.edu.hk.