HERIOT WATT UNIVERSITY | LEARNING + TEACHING academy

ASSESSMENTS
Making your exam work as a take-home assessment

This guide describes a range of options for converting a traditional in-person exam into an assessment that students can complete remotely. It covers a spectrum of possibilities, ranging from the relatively quick and easy, to options requiring more time and effort.

SUPPORTING
STUDENT LEARNING ONLINE

INTRODUCTION

End-of-semester exams are often in-person, closed-book, invigilated and timed. Because of the measures taken to combat the Coronavirus, in-person assessments are not currently possible, and where a traditional exam was planned, alternatives will need to be used. The scope for modifying assessments will vary between courses, and will depend on a range of factors: whether there is time to discuss alternatives with external examiners; how much time staff have to develop new exam questions; and limitations caused by professional accreditation. This guide contains a range of ways that a traditional exam could be adapted for an online context. They are listed in a spectrum ranging from relatively quick and easy ways to convert an exam into a take-home assessment, through to more substantial changes involving more time and effort. This guide only covers variations on an exam format, and ideas for more diverse assessment methods can be found in the **'Guide to Exam Alternatives'**.

GENERAL ISSUES TO CONSIDER

There are a number of important things to bear in mind when adapting your exam:

1. **Always be guided by the learning outcomes.** What are you expecting students to know by the end of the course? How do you expect them to be able to demonstrate that knowledge? What skills are you expecting them to have developed? Make sure that however you adapt the exam, it is still focused on whatever you intended the students to learn

2. **Think about whether the final assessment is required.** You may have enough information from coursework to make a judgement about students' performance in the course. Given the compromises that might be involved in adapting your exam, cancelling the exam completely may be a better option

3. **Keep in mind what assessment formats students are used to.** Encountering a new type of assessment task can be stressful at the best of times, and could be particularly difficult in the current situation. If possible, use an assessment task that students are already familiar with. If that isn't possible, give them as much guidance as possible in advance: clear descriptions of what you expect; marking criteria or a rubric; and examples of the kind of work that would receive different kinds of marks.

The four options presented in this guide describe different versions of a 'take-home exam': an assessment where students have a period of time (e.g. a working day, 24 hours, a week, etc.) to download an exam paper, answer the questions, and then submit their answers online. Students are permitted access to their notes, course materials, textbooks, online resources, etc.

BENEFITS OF TAKE-HOME EXAMS

Take-home exams are being adopted as an emergency measure in response to the current impossibility of face-to-face assessment, but they are a common assessment format in their own right, and they have a number of benefits over traditional exams:

a) Take-home exams can be less stressful for students, because they have longer to take the exam and are able to take the exam in their own space

b) If the format of the exam allows students to use word-processing software, marking becomes easier as it avoids challenges with the legibility of handwritten scripts

c) The open-book format means that there is inevitably less emphasis on what students can remember, and take-home exams are generally better at assessing more complex learning, such as the ability to evaluate information, or to apply knowledge to novel situations

d) Take-home exams can be more 'authentic', i.e. more similar to the world of work. While a 2-hour closed-book exam is quite unlike normal challenges encountered in the workplace, a take-home exam - where, for example, students have a full day to find relevant material, evaluate its usefulness and reliability, and synthesise different sources of information to construct a convincing final product - can have a lot more in common with what students will be expected to do once they graduate.

FOUR OPTIONS FOR MODIFYING YOUR EXAM

OPTION 1:
NO CHANGE TO THE EXAM PAPER OR MARKING CRITERIA

If there is no time or opportunity to change either the exam paper or the marking criteria, the existing exam paper can be used in its original form as a take-home exam. This was the option taken University-wide for the May exam diet for undergraduate students in years 3, 4 and 5 in Scotland and Dubai, and years 2, 3 and 4 in Malaysia.

Practical considerations

If you are using the existing exam paper as a take-home exam, there are a number of practical questions to consider. Some of these questions may need discussion at programme or School level to ensure consistency.

- What is the assessment period? Will students have a working day, 24 hours, 48 hours, between the exam paper being made available and the deadline for submissions? You may need to consider a long enough period to accommodate different time-zones, given that students might be located all over the world

- How will the exam paper be made available to students? Will you use the Vision course page, or some other mechanism?

- How should students submit their completed scripts? Options include Blackboard Assignment, Turnitin, email, OneDrive

- What format should students use for their scripts? Word processed files (e.g. .doc files) may be suitable for discursive subjects (and permit the use of Turnitin), but handwriting may be better for numerical subjects involving equations and drawings, etc. Handwritten scripts can be photographed with a mobile device, or scanned using a printer, and then submitted

- Is a word count required, and if so what should it be? Given that students will have considerably longer than a normal exam to write their answers, a word count is highly recommended in order to;
    a) keep the marking workload manageable,
    b) ensure that students are being assessed on their ability to communicate concisely,
       and
    c) help students understand what is expected.--

Guidance around these issues was provided as part of the shift to take-home exams for the May exam diet, and can be found here:
https://www.hw.ac.uk/uk/students/studies/examinations.htm

Different people may have different views about how to take the changed conditions into account when marking. If there are multiple people marking an exam, it is important that they agree how to accommodate the changed conditions in order to maintain the consistency of marking.

Dealing with marking

In addition to these practical decisions about the process and format of the assessment, the staff undertaking the marking will need to consider whether, and how, to take into account the fact that the exams were taken in open-book conditions, without invigilation and over a longer period of time. With the best will in the world, it will be difficult for markers to ignore that students had access to their notes, internet resources etc even if the marking scheme has not been changed. Questions that in normal conditions would have rewarded students for the accurate recall and presentation of important information will be particularly challenging to mark. There are two key issues:

1. Different people may have different views about **how to take the changed conditions into account when marking**. If there are multiple people marking an exam, it is important that they agree how to accommodate the changed conditions in order to maintain the consistency of marking. This could be achieved by, for example, meeting virtually at the start of the marking period to discuss a small sample of scripts, in order to agree their approach and calibrate their judgements

2. Students may find it difficult to gauge what is expected from them in the changed conditions. They may be unfamiliar with take-home exams, and in any case this will be their first experience of a take-home exam using an exam paper designed for normal exam conditions. **Students will benefit from any guidance about what to expect**, and staff should seriously consider providing them with written guidance on how the exam will be marked, and what the differences will be from a traditional exam.

OPTION 2:
MODIFYING THE MARKING CRITERIA, MARKING SCHEME OR RUBRIC
(AND NO CHANGE TO EXAM PAPER)

Even if there isn't time to adapt the exam paper itself, there may still be time to modify how the exam is marked to take into account the changed exam conditions. This could be very useful in rebalancing the marks so that the exam is more focused on rewarding students' ability to use their knowledge in different ways, rather than rewarding their accurate recall of important information.

Exams often include a mixture of questions that a) assess the ability to recall important information, and b) assess the ability to make use of that information – e.g. to apply, evaluate, synthesise or analyse that information. **Marking criteria could be adjusted so that questions that reward the ability to recall important information are weighted less heavily**, with more of the marks being awarded for those questions focused on the application or analysis of information. Something similar may be relevant within questions, with the ability to synthesise or evaluate information carrying greater marks than the ability to recall information.

How it looks to rebalance marks away from information recall in favour of information manipulation will vary by discipline. In numerical science subjects, it may mean awarding fewer marks for the ability to recall equations or formulae, and awarding greater marks for the application of formulae to novel situations. In discursive (essay-based) subjects, it may mean adjusting marking criteria so that fewer marks are gained by accurately describing a particular theoretical position, and more marks are gained by the critical analysis of that theoretical position.

If these kinds of changes are made to marking criteria, it will be important to help students to understand what is now expected of them, through providing, in advance, descriptions of what you will be looking for, modified marking criteria, and/or generalised examples of the kinds of answers that would gain different kinds of marks.

OPTION 3:
MODIFYING THE EXAM PAPER

There may be time to respond to the changed conditions in a more substantial way, by making modifications to the exam paper itself. By removing, adding and amending questions, you may be able to ensure that the exam paper is suitable for an open-book format. At its simplest, this could just mean removing any questions that predominantly reward the ability to accurately recall information. It may also be possible to add replacement questions, that reward students' deeper thinking. Questions that ask students to *critique, calculate, construct, synthesise, argue, contrast* or *predict* are likely to be more suitable for an open-book context.

When considering whether exam questions test students' ability to recall information, or ask them to engage in more complex tasks, it may be useful to bear the following points in mind.

- It is not only questions that are explicitly intended to reward accurate recall that lead to students falling back on memorisation. Sometimes, questions that are designed to assess students' ability to engage in deeper thinking will in practice lead students to demonstrate recall. Questions may be designed to test students' deep understanding by, for example, asking them to derive Physics formulae, however students may attempt to memorise each step of the derivation in advance rather than need to work through it in the exam. For a take-home exam, **it may be necessary to develop questions that not only *reward* deeper understanding, but *require* it**

- It will be particularly important to ensure that exam questions are sufficiently different from questions on past papers to which students have access. Students often use past papers to develop answers to prospective questions (by, for example, developing plans for essay questions that are likely to come up). In the case of a take-home exam, students will be able to simply cut-and-paste any prepared material into their script. To ensure that you are only assessing work that students complete within the period they have access to the exam paper (e.g. 24 hours), **it will be important to ensure that questions differ sufficiently from questions used in previous years.** At the same time, questions should remain broadly in line with students' expectations, and past papers are likely to form the basis of students' expectations of the kind of work the exam will require.

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MODIFYING THE EXAM FORMAT

In addition to changing the questions on the exam paper itself, it may also be possible to alter the format of the assessment. Within the broad exam format, there are a number of ways to exploit the benefits of the take-home conditions.

- Unlike a traditional exam, a take-home exam allows students to access substantial amounts of supplementary information as part of the assessment. For example, you could provide a link to a publicly available dataset, and set students the task of performing a set of calculations or statistical analyses. You could test students on their ability to find, understand and critique research articles on a particular topic. Or you could develop a set of material around a particular fictional or real-world scenario, and ask students to make recommendations from the point of view of a particular stakeholder. As long as the assessment task fits with the intended learning outcomes for the course, this is a good way to exploit the take-home conditions to **create a more complex and real-world assessment**

- You could use a modified form of the original exam paper, but **assess students orally**. This could either be done through asking students to create and upload a video of them presenting and explaining their answers, or through a video interview. This would have the benefit of assessing students on their oral communication, and in the case of the interview, would allow you to explore their understanding more deeply in particular areas. There are challenges to this kind of approach that would need to be considered: it is time intensive (particularly to hold interviews with every student on the course), different time-zones could create complications for video interviews, and students would need to be sufficiently familiar with oral presentations of that sort

- You could provide the questions in advance of the assessment period – often called a **'seen exam'**. In the context of a take-home exam, that may mean providing the students with information in advance about the specific topics covered in the exam, so that they can prepare their notes, books and other material. The exam could then expect more from them in terms of developing and communicating their answers (e.g. performing more sophisticated calculations, or creating better-structured and more widely-referenced arguments).

As always, it is important to ensure that students have a good understanding of what is expected in the assessment. If an unfamiliar format is used, students should be given information about the kind of work that will be expected: a description of what the task is designed to assess, examples of the kind of work expected, and marking criteria and/or rubrics will all be helpful. Ideally, students should be given the opportunity to do a practice run of the assessment.

A NOTE ON LIMITING THE SCOPE FOR PLAGIARISM

Some members of staff may have significant concerns about the academic integrity of take-home exams, and the possibility of students collaborating with each other, getting assistance from friends or family members, or passing off other people's work as their own. Students themselves are also normally very keen for assessments to be fair and not open to abuse. In the current context, compromises may be required and there could be a limit to how well we can guard against academic dishonesty. However there are a few relatively simple barriers to plagiarism that can be put in place, given available time:

- Specific questions – and particularly **context-specific questions** – are less vulnerable than general questions to students being able to source off-the-shelf answers from the internet. For example, questions could draw on local industry or society, or the research interests of the teaching staff. Questions could draw specifically from the course, e.g. using examples that have been employed in lectures

- **Topical questions** are also more challenging to plagiarise, so assessment tasks tied to recent events or material (such as questions related to a recent journal article) may be helpful

- Blackboard offers the ability to create a large question bank, **allowing students to receive randomised sets of questions**. This limits the scope for collaboration between students, as it reduces the possibility that they will be attempting the same questions. This is most effective for relatively simple tasks such as multiple choice questions, as otherwise it can significantly increase the effort involved in marking

- Questions will be less vulnerable to plagiarism if what is being assessed is the route to a judgement, not just the judgement itself. Where there is **no single right answer**, it is harder for students to lift material from the internet; where there is more scope for individual expression, students will find it harder to disguise collaboration. For example, questions could allow multiple ways of calculating a numerical answer (with marks awarded for the process), or questions could require students to present a well-argued personal point of view

- **Turnitin** is useful as a tool to help staff identify plagiarism, and scripts can be passed through Turnitin even if they are submitted via a different mechanism. This will only be useful for word-processed submissions however, as Turnitin will not accept handwritten (or hand-drawn) submissions

- The main take-home exam – focused on assessing more complex knowledge and abilities, but more vulnerable to academic dishonesty – could be **supplemented with a short timed online test** (e.g. a multiple choice questionnaire). This test could have a binary pass/fail mark, and be designed to check that students have a baseline knowledge of content

- It may be possible to modify the assessment scheme to **introduce vivas for a sample of the submissions**. A small group of students could be selected at random to participate in video interviews after the exam, discussing their exam script. The knowledge that they may have to talk about their script may dissuade students from engaging in plagiarism.

USEFUL RESOURCES

RELEVANT 'WATT WORKS' GUIDES PRODUCED BY HERIOT WATT'S LEARNING AND TEACHING ACADEMY

Alternatives to Traditional Exams: https://lta.hw.ac.uk/wp-content/uploads/GUIDE-NO5_Alternatives-to-traditional-exams.pdf

Alternatives to Essays: https://lta.hw.ac.uk/wp-content/uploads/GUIDE-NO6_Alternatives-to-essays.pdf

Introduction to E-Assessment: https://lta.hw.ac.uk/wp-content/uploads/GuideNo17_Introduction-to-e-assessment.pdf

GUIDES TO ADAPTING ASSESSMENTS FOR THE CURRENT CONTEXT

Bristol University, **Coronavirus Guidance**: http://www.bristol.ac.uk/bilt/resources/coronavirus-guidance/

Brown, S. and Sambell, K. (2020) **Contingency planning: exploring rapid alternatives to face-to-face assessment:** https://sally-brown.net/download/3122/

University of London, Centre for Distance Education, **Assessment when conventional exams are not possible**: https://london.ac.uk/sites/default/files/cde/assessment-when-conventional-exams-not-possible_SB_3%20%281%29.pdf

Wood, G. and Gibbs, B. (2020) **COVID-19 Crisis: Transitioning from traditional invigilated exams to 'take-home' exam papers**: https://drive.google.com/file/d/1rMyM6Sb2S1tAVWVPiNtCg_ZEd-9sKdT5/view

GUIDES TO DESIGNING TAKE-HOME EXAMS

London School of Economics: https://info.lse.ac.uk/staff/divisions/Eden-Centre/Assessment-Toolkit/Assessment-conditions/Take-home-assessment

Manchester Metropolitan University:
http://www.celt.mmu.ac.uk/assessment/design/tasks/takehome_exam.php

Ryerson University (guide to open-book exams):
https://www.ryerson.ca/content/dam/learning-teaching/teaching-resources/assessment/open-book-exams.pdf

University of Newcastle, Australia (guide to open-book exams):
https://www.newcastle.edu.au/__data/assets/pdf_file/0006/268980/Open-Book-Exams.pdf

SELECTED RESEARCH LITERATURE ON TAKE-HOME EXAMS:

Bengtsson, L. (2019) **Take-home exams in higher education: A systematic review**. Educational Sciences 9(4) https://doi.org/10.3390/educsci9040267

Lopéz, D., Cruz, J.-L., Sánchez, F. and Fernández, A. (2011) **A take-home exam to assess professional skills**. In Proceedings of the 41st ASEE/IEEE Frontiers in Education Conference, Rapid City, SD, USA, 12–15 October 2011. https://www.researchgate.net/profile/David_Lopez43/publication/254049339_A_take-home_exam_to_assess_professional_skills/links/5612074108aec422d1172aac/A-take-home-exam-to-assess-professional-skills.pdf

Williams, J. and Wong, A. (2009) **The efficacy of final examinations: A comparative study of closed-book, invigilated exams and open-book, open-web exams.** British Journal of Educational Technology 40(2): 227-236 https://doi.org/10.1111/j.1467-8535.2008.00929.x

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