

ASSESSMENTS

Creating a take-home exam

This document provides guidance on what to think about when writing a take-home exam paper, alongside some examples of take-home exams from around Heriot-Watt.

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INTRODUCTION

Take-home exams are very different to traditional exams. They are open-book and uninvigilated, and in most cases students have 24 hours to complete them.

Adapting a traditional exam for take-home conditions, or writing one from scratch, presents particular challenges for academic staff, but also provides an opportunity to think differently about what an exam can look like.

GENERAL ISSUES TO CONSIDER

1. What restrictions apply to your exam? When writing your exam paper, it is important to be aware of any rules that affect what the exam should look like.

In addition to University-level expectations, Schools, departments/disciplines and programmes may have their own guidelines about how take-home exams should be designed, and you should be aware of those. Accrediting professional bodies and other organisations may also place requirements on exams.

2. Does the exam assess deeper understanding and more complex skills? Take-home exams are not well-suited to assessing students' simple understanding of course material. The open-book nature of the exam means that students will have answers to hand for questions that test their ability to directly recall information. Take-home exams are much better suited to assessing students' ability to apply what they've learned to new problems, evaluate unfamiliar material, and analyse novel cases.

The examples included in this guide provide some ideas about how to shift exam papers away from simple recall. There are also some tips and links to useful resources in the ['Making your exam work as a take-home assessment'](#) guide. [Bloom's Taxonomy](#) can be a useful tool for writing exam papers that test deeper understanding: for example, questions that ask students to 'define', 'state' or 'describe' are less likely to suit a take-home exam than questions that ask students to 'contrast', 'critique', 'solve' or 'design'.

3. Does the exam make the most of the take-home conditions?

While the take-home exams introduced at Heriot-Watt do have significant limitations, they also have some advantages over traditional exams. Students' access to the internet, their notes and textbooks, and their use of a computer or mobile device to complete the exam – these create a situation that is more like 'real life' than a traditional exam, and open up some new possibilities.

For example, students can be asked to perform calculations using real-world datasets, they can be asked to find and critique research literature, or they can be provided with case study material in advance, and then asked to explore the case study in the exam.

4. Does the exam limit the possibility of academic misconduct? It is important to ensure that students are aware of rules on academic integrity and academic misconduct, and the penalties for breaking those rules. Another way of reducing the likelihood of academic

In many courses, final exams have been replaced by continuous assessment, and there is guidance available about [developing exam alternatives](#). For those colleagues who do intend to use a final exam, this guide provides some key questions to think about, and some examples of how staff around Heriot-Watt have approached the task of designing an exam to fit the take-home conditions.

Exam papers in two SoSS courses, [Delivering Successful Projects and Strategic Risk Management](#), have been changed to remove MCQs, to ask students to provide more rationale for their answers, to encourage students to conduct research online during the exam and to increase the number of marks per question. Marking rubrics have also been changed to increase the reward for application of understanding, and the use of evidence. Evidence from the grading distribution and pass rate suggests these changes were successful.

EXAMPLE PROVIDED BY SHAI DAVIDOV

***In [MACS, for the BSc Actuarial Science, a number of changes have been made to exam papers.](#)** The proportion of questions that require reflection has been increased. The proportion of 'bookwork' questions has been reduced, and those that remain have been focused more on applying what students have learned rather than copying out their notes. Some questions have been randomised by asking students to use the final digit of their ID number to determine parameters. Marks are being awarded more for the students' workings, rather than just correct answers. Questions have been written with an awareness that students may try and search for precise phrases in lecture notes and past papers; 'keywords', and phrasing from previously-used questions, have been avoided.*

EXAMPLE PROVIDED BY IAN SHARPE

The original exam for [Geoscience for Petroleum Engineers - an MSc level conversion course in EGIS](#) - included a number of 'definition' type questions, and then a choice of longer 'exercise' type questions. When redesigning this for the take-home conditions, all the simple 'definition' type questions were removed as these were too easy to simply copy out of notes and other resources. For the December diet the exam contains four 'exercise' type questions, with all questions compulsory and worth 25 marks. The questions include rather more subsections than previous examples, as learning outcomes previously covered by the 'definition' type questions are now addressed (referencing the data used in the skills questions so that material from model exams or notes cannot simply be copied). Students are required to hand-draw diagrams, and then photograph or scan them into the document, to make it harder for students to copy from the textbook.

EXAMPLE PROVIDED BY HELEN LEVER

For the Linear Algebra resit exam in MACS, an expanded true/false question approach will be used. Students are asked to determine the validity of a series of statements. For each true statement, students are required to provide a short justification. For each false statement, students are required to provide a counterexample. This approach targets a deeper understanding of the essential learning objectives without requiring heavy computation or randomisation. Students are required to assess and critique the statements and are expected to justify and defend their solution with their knowledge of the content. In the case of false statements, counterexamples are abundant (assuming mastery of the content) and provides a safeguard against collusion between students.

EXAMPLE PROVIDED BY THOMAS WONG

For the Organisational Behaviour exam in December for SoSS, a case study will be pre-released to the students, so that they can focus their time in the exam on conducting their analysis rather than reading the material. The intention is to encourage students to produce more thoughtful responses, and to support those for whom English is not their first language. Maximum word counts will also be provided to help guide students on how much time and effort to devote to each question.

EXAMPLE PROVIDED BY LINDA BUCHAN

misconduct is through assessment design. In the context of take-home exams, there may be a particular need to limit the potential for collusion between students, inappropriate use of internet material, and contract cheating ('essay mills').

There are some practical ideas contained in the examples included in this document, and some general tips in the **'Making your exam work as a take-home assessment'** guide. In general, the more specific an exam question is, the harder it is for students to collude, or find ready-made material on the internet.

- Exam questions can be made more specific to the individual by asking them to draw on their own experience. Awarding marks for workings can also make collusion harder, as can asking students to provide explanations and arguments in their answers.
- Exam questions can be made more topic-specific by narrowing down the focus, or by asking students to apply a general idea or theory to a particular case.
- Exam questions can be made more context-specific by linking to recent events or news stories, or drawing on specific material from the course.

5. Do students know what they are expected to do in the exam? When **students provided feedback** on the take-home exams in April and May 2020, the most common concern was that they weren't sure what was expected of them, and how the exams would be marked. This is unsurprising, given that these take-home exams are a new form of assessment for everyone.

There are a range of ways of helping students to understand what you expect of them. Relevant past papers may not be available, but talking through sample questions can be very useful, particularly in terms of helping students understand the difference in expectations between a take-home exam and a conventional exam. For example, if you will be awarding greater marks for how they can apply their knowledge to unfamiliar problems, that can be explained to the students. To help you

In second year Chemical Thermodynamics and Kinetics for Chemists and Chemical Engineers (B18PA and B18AP) in EPS, a timed webtest was used alongside a take-home exam during the August resit diet. A webtest offers the opportunity to assess the essential skills (knowledge, facts, numeracy skills) under time restriction. The second part of the assessment can then be an open-book take-home exam that assesses the students' problem solving skills, and asks students to use their notes to connect different aspects of a course. A two-hour exam (with 15 short-answer questions) was replaced with a one-hour webtest and a take-home exam with six short-answer questions. The take-home questions were more challenging and that should have been reflected in the time it took to answer them. While marking of the take-home exam questions took quite a bit longer compared to a standard exam question, the number of questions was reduced. The webtest was largely marked automatically although checks did take place to ensure no mistakes were made in the setup. Overall, this approach has not increased the marking load on staff.

EXAMPLE PROVIDED BY NILS HENDRIK NAHLER

support the students to know what to expect, it may be useful for you to find out more about students' experiences of assessment. Are your colleagues using take-home exams? If so, how are they adapting their exams for the take-home conditions? What kinds of take-home exams have students encountered so far, if any?

As these are an unfamiliar form of assessment, students may not be sure how to prepare for them. Some students may be tempted to dispense with revision, on the grounds that they will have access to their notes. You may need to help them understand that it will still be important for them to have thoroughly reviewed the course content, so they don't need to spend valuable time in the exam looking up basic material or trying to locate relevant sections of the textbook, for example.

It may also be worth discussing how they can prepare their notes, books, browser bookmarks etc. to make best use of them in the exam.

6. Do you know where to get feedback and advice about your exam paper? With any exam paper, it is good practice to get feedback from a colleague: a fresh pair of eyes can be really useful for finding out how students will approach a question, and whether it's pitched at the right level. There may be specific colleagues or working groups in your School, department/discipline or programme team, where people are sharing ideas about how to design take-home exams.

There is also guidance and support available from the Learning and Teaching Academy. A range of guides and resources are available **on the LTA website**, and the LTA run a range of **events**, including regular workshops on assessment and feedback. To contact the LTA about the support that is available, please email LTAcademy@hw.ac.uk

For the August exam for Construction Financial Management in EGIS, a number of changes were made. An essay-type question, which is normally optional, was made mandatory. For the calculation questions, marks have been redistributed to give more marks for the sections where students have to reflect on and explain their calculations. Finally, a word limit was provided to ensure the marking is manageable.

EXAMPLE PROVIDED BY HAGIR HAKIM

ADDITIONAL RESOURCES

There is general advice on writing exam questions in ['In at the deep end'](#).

There are a [range of guides](#) to different aspects of assessment and feedback on the LTA webpage.

There are a few different [guides to adapting assessments for Responsive Blended Learning](#), including this one.

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