

# Open-book or take-home exams online

## WHAT IS THIS RESOURCE?

Considerations for administering exams online as open-book or take-home exams.

## HOW DO I USE IT?

Review the options and best practices to consider when offering open-book or take-home exams online. Work with your department to determine the best option for students. As assessment involves discipline-specific tasks, consult with CET on the particulars unique to your course. Also, consider participating in a CET training covering online assessment.

### Background on assessments

Assessments are how instructors collect evidence of a student's level of mastery of the course learning objectives. This evidence of their skills can come in many forms or work products including traditional exams, open-book exams, projects, presentations, performances, and research papers.

Assessments of all types, including open-book or take-home exams and exams given online, follow best practices. In general, all assessments no matter their format or mode of delivery

* align to course learning objectives
* test skills previously taught and practiced during the course
* are numerous (not just one or two high-stakes assessments)
* are of diverse types/formats
* are authentic (reflect skills relevant to real-world professional work)
* do not include unfamiliar or undefined cultural references or cumbersome language which could put students at a disadvantage
* change regularly/may have multiple versions
* are graded with rubrics (except T/F or multiple choice)

### Choices for open-book and take-home assessments online

Whether or not courses take place online, course assessments might be open-book or take-home. An open-book or take-home assessment typically refers to a student work product that

* takes place outside of class meeting time
* is untimed
* allows for the student consulting resources such as a textbook, course materials, notes, the Internet, and other people

Some examples of the most common types of open-book or take-home assessments (assigned in person or online) include group or team projects, research assignments, and preparation of a physical work product requiring extensive time (essay, artwork, performance, experiment, etc). In many ways, such assessments prove to be the best representations of the real working world in which work is rarely completed alone or without access to resources. Some common examples are below and can occur online/remotely.

**Group/team project**: Students work in assigned or self-selected groups to complete an assigned work product. Typically, the team needs to meet outside of class time to prepare and uses all available resources (course and other readings, etc.) and materials (PowerPoint, Google Drive, data visualization software, etc). Students can hold their own group meetings outside of class in Zoom.

**Research assignment:** Students work alone or in groups to complete assigned or original research in their discipline and prepare the results in written or visual form, sometimes accompanied by a presentation. This work is usually completed outside of class time, often in frequent consultation with the instructor for guidance, and typically requires data collection and/or analysis and consulting multiple sources. Students can continue research remotely with assistance from [USC Libraries](https://libraries.usc.edu/summer2021).

**Essay/Paper/Report/Memo/Review:** Students work alone or in groups to complete substantial (long-form) written work on an assigned prompt or original topic related to the course. Written work is usually completed outside of class time, often in frequent consultation with the instructor for guidance, and requires consulting and citing sources. Written work typically follows a taught format, model, or style relevant to the discipline and be submitted through Blackboard. Short-form written work is often captured by open-ended, short-answer essay questions. For more information on designing question prompts for short answer, see the CET resource Planning online assessment.

**Artwork/Performance**: Students work alone or in groups to create a 2-D or 3-D piece or demonstrate a performance. Typically, students require significant outside of class time for construction and/or rehearsal and prototyping and use all available materials in the required or desired medium. Pieces and performances can be recorded using still photography or videography for online experiencing via Zoom or Blackboard submission when live showcasing isn't possible.

For more information on how to design such types of assessments, see the CET resources:

* Bloom's Taxonomy
* Types of Assessment
* Assignment Description Template
* Planning Online Assessments

### Best practices for designing multiple-choice exams for online delivery

Instructors may feel that multiple choice exams appear more challenging than other types to deliver as open-book or take-home because they traditionally tend to be timed exams completed alone during class time. However, it is possible to use a well-designed multiple-choice exam as an open-book or take-home exam.

The most common pitfall when designing multiple-choice exams proves to be alignment to learning objectives in one or more of the following ways.

* Course learning objectives are not specific and measurable making it nearly Impossible to design an assessment
* Questions asked do not measure or "match" learning objectives
* Questions may be written in ways that are testing other skills unrelated to course learning objectives
* Rotating faculty may not have taught to the course learning objectives or may have changed them
* Faculty submitting questions to help build the exam may not have received Information/training

You may wish to review CET resources on Course learning objectives if you encounter the above challenges.

There are several different question types to consider. After determining the most appropriate type of multiple-choice question for the learning objective skill(s) you are assessing (see CET resource Test Question Design for assistance), consider the following top tips. “Stem” refers to the question statement preceding the list of multiple-choice answers.

1. **The stem should be meaningful** by itself and should present a definite problem. A stem that presents a definite problem allows a focus on the learning outcome. Not meaningful: Which of the following is a true statement? Meaningful: Which characteristic is relatively constant in mitochondrial genomes across species?
2. **The stem should not contain irrelevant material**, which can decrease the reliability and the validity of the test scores.
3. **The stem should be negatively stated only when significant** learning outcomes require it. Students often have difficulty understanding items with negative phrasing. If required, the negative element should be emphasized with italics or capitalization.
4. **The stem should be a question or a partial sentence**. A question stem is preferable because it allows the student to focus on answering the question rather than holding the partial sentence in working memory and sequentially completing it with each alternative.
5. **All alternatives should be plausible**. The function of the incorrect alternatives is to serve as distractors, which should be selected by students who did not achieve the learning outcome but ignored by students who did achieve the learning outcome. Alternatives that are implausible don’t serve as functional distractors and thus should not be used. Common student errors provide the best source of distractors.
6. **Alternatives should be stated clearly and concisely**. Items that are excessively wordy assess students’ reading ability rather than their attainment of the learning objective.
7. **Alternatives should be mutually exclusive**. Alternatives with overlapping content may be considered “trick” items by test-takers, excessive use of which can erode trust and respect for the testing process.
8. **Alternatives should be free from clues about which response is correct.** Sophisticated test-takers are alert to inadvertent clues to the correct answer, such differences in grammar, length, formatting, and language choice in the alternatives. It’s therefore important that alternatives be homogenous in content and format (grammar, form, length, language).
9. **The alternatives “all of the above” and “none of the above” should not be used**. When “all of the above” is used as an answer, test-takers who can identify more than one alternative as correct can select the correct answer even if unsure about other alternative(s). When “none of the above” is used as an alternative, test-takers who can eliminate a single option can thereby eliminate a second option. In either case, students can use partial knowledge to arrive at a correct answer.
10. **The alternatives should be presented in a logical order** (e.g., alphabetical or numerical) to avoid a bias toward certain positions.
11. **The number of alternatives can vary** among items as long as all alternatives are plausible. There is little difference in difficulty, discrimination, and test score reliability among items containing two, three, and four distractors.
12. **Avoid complex multiple choice items**, in which some or all of the alternatives consist of different combinations of options such as “Both A & B.” As with “all of the above” answers, a sophisticated test-taker can use partial knowledge to achieve a correct answer.
13. **Keep the specific content of items independent** of one another. Savvy test-takers can use information in one question to answer another question, reducing the validity of the test.
14. **Design questions that focus on higher levels of cognition** as defined by Bloom’s taxonomy. A stem that presents a problem that requires application of course principles, analysis of a problem, or evaluation of alternatives is focused on higher-order thinking and thus tests students’ ability to do such thinking. Examples below:

**Remember Level of Bloom's Taxonomy**

According to Gagne, the association of an already available response with a new stimulus is called:

a)

b)

c)

d)

Student is simply asked to remember the definition of signal learning. Fine if that was the learning objective skill--a lower-order skill.

**Application Level of Bloom's Taxonomy**

Ali, age three-and-a-half, spills their milk at the table. According to current principles of child development, the parents should:

a)

b)

c)

d)

Student is asked to apply principles learned & practiced in class related to child development in a new context/scenario--a higher-order skill.

**Analysis Level of Bloom's Taxonomy**

Professor Stepp’s statistics class student asked what their average score was for 3 exams. The reply was +1.7. Which of the following assumptions about the student’s test scores is most plausible?

a)

b)

c)

d)

Student is asked to recognize unstated assumptions/inferences, break down complex material into parts & determine relationships--a higher-level skill.

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Horton, W. (2012). Tests. In E-Learning by Design (pp. 215-284). San Francisco, CA: Pfeiffer.

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