

Oral examinations for assessment in undergraduate course remote and in-person learning environments

Oral examinations are an assessment approach where students give spoken responses to questions from the examiner(s) through individual interviews. Even though they are widely used in medical and graduate education, they are seldom used in undergraduate courses (Pereira et al., 2016). Oral examinations are a potential approach for effective assessment in undergraduate courses in both remote and in-person learning environments because they can be authentic and inclusive. Oral examinations, in conversation format, allow students to demonstrate learning progress and instructors to provide immediate feedback through verbal exchanges, encourage deep understanding, and promote the development of oral communication skills. They can also minimize academic integrity concerns, especially in remote teaching during the pandemic (Akimov & Malin, 2020; Huxham et al., 2012; Pearce & Lee, 2009). Despite the potential benefits, oral examinations are currently rarely adopted in undergraduate courses due to concerns about the time required from instructors to plan and conduct the examinations, anxiety experienced by students, and examiner biases (Iannone & Simpson, 2015).

The author used oral examinations in three undergraduate courses in horticultural disciplines in 2021-2022. The courses were Urban Horticulture Production, Commercial Vegetable Production, as well as Practices and Technologies for Small Farm, which were all upper-level and small-sized with about 10 students in each class. All these classes were offered in a hybrid format (both in-person and online learning) due to the pandemic.

The author developed the following practices to implement this alternative assessment approach to ensure efficiency, effectiveness, and fairness: a) created a grading rubric (Table 1) with an outline of questions and key points to promote consistency, fairness, and immediate feedback, as well as to increase efficiency and save time required from instructors; b) provided a practice section before the first oral examination and promoted a friendly and relaxed atmosphere during the oral examination to reduce students' anxiety; c) asked supplementary questions during the oral examination to guide students through demonstrating their deep understanding; d) emailed summaries of what students missed after the whole class finished the exam to provide further feedback and promote students' learning. Four oral examinations including the final were given throughout the semester for each class. One examination section lasted for 30 min per student. Each examination included the same 10-15 open-ended questions that required students to synthesize information from multiple lectures. For example, after learning about the vegetables in different families, a question on the exam would be 'How

does nutrient management differ among asparagus, solanaceous, fabaceous, and cucurbitaceous crops?'. Students would schedule an oral exam section with the instructor within 2 days' time frame and had the option of taking it in-person or on Zoom. Approximately 80% of the students chose to take the oral exams on Zoom. Since questions were the same for all students, it could be a concern for students taking the examination earlier sharing the questions. However, scheduling all the examinations within a short time frame can help prevent students from sharing questions. There was no evidence that students shared questions in the author's experience.

Students' grades were comparable to those in the previous semesters when traditional written examinations were used for assessment. Students' perspectives on this assessment approach were collected through the instructor's informal communication with students throughout the semester and from students' anonymous course final evaluation conducted by the university. It was the first time for students to take oral examinations in their college education, and their feedback on oral examinations was mostly positive. Some students expressed their preference for the oral examination format as an effective way to foster their learning. For example, one student wrote on the course final evaluation, "I loved the oral exams- That was my first time in my whole college career having done those, and I think when it comes to online/not in-person learning, that that was the best way to do it." However, there was one student who shared her concerns about oral examinations because she thought she could not perform well using this format. Written examinations as an alternative assessment option were offered to the whole class in which the aforementioned concerned student was enrolled and only that student chose the written examinations.

From the instructor's perspective, the benefits of using oral examinations include more interactions with students outside of class time, better assessment of students' understanding of the content covered in class, the ability to provide immediate feedback to students and help students fill in their knowledge gap during the examinations, and the easiness to ensure academic integrity. However, the amount of time required from the instructor to design and implement oral examinations could exceed that for traditional written examinations, especially when the class size is large. For small classes with 10 to 20 students, it is feasible to adopt this approach. It is essential for the instructor to communicate with students why oral examinations are being used, in order to get student buy-in from the beginning. Conducting the exams consistently is also important because consistency not only increases efficiency for the instructor but also reduces students' anxiety. In the end, students are different, so instructors are encouraged to provide alternative examination formats to some students who cannot get used to this approach.

In summary, based on the author's experience, oral examinations as an alternative assessment strategy in undergraduate courses are a potential teaching method that is worth other instructors considering. It requires instructors to carefully design and use good practices to facilitate the adoption. It can improve teaching-learning effectiveness, especially when engaging students, facilitating learning, and maintaining academic integrity becomes more challenging in the combination of remote and in-person learning environments.

References

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Table 1.

Sample of a partial grading rubric for an oral examination used in a Commercial Vegetable Production course.

| Question (points) | Key points | Missing (study more) | Grade |
|--|---|----------------------|-------|
| How does nutrient management differ among asparagus, solanaceous, fabaceous, cucurbitaceous, and poaceous vegetables? (3) | Asparagus first year, solanaceous, cucurbitaceous, poaceous – preplant + top/side dresses for N; fabaceous – only preplant N, no side dresses; asparagus following years – apply N 2 weeks before end of harvest season for next year’s yield | | |
| What is blossom-end rot? Which crops have this issue? How to prevent it? (3) | Ca deficiency; Tomato, pepper; Ca in soil, steady water supply, mulching, avoid high temp and light | | |
| How are seedless watermelons produced? (3) | Triploid + diploid interplanted, pollinators | | |
| How does irrigation management affect tomato growth and fruit quality? How does it differ from the irrigation management for cool-season annual crops? (3) | Early stage-infrequent heavy application for deeper root growth; later stage-too litter blossom-end rot, too much-fruit cracking; less frequent than cool-season crops | | |
| Compare pollination in solanaceous, cucurbitaceous, and poaceous crops. (4) | Solanaceous-self-pollinated, insects or vibration; cucurbitaceous-monoecious/diecious, insects, except parthenocarpic cucumbers; sweet corn-wind | | |
| Please compare determinate and indeterminate growth habits. Which crops have both growth habits? (3) | Determinate: stems stop growing once flowering starts, flowers at the apical of stems; indeterminate: stems continue to grow till plant death, flowers along the stems; tomato, beans | | |