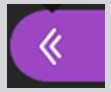
Assessment Alternatives: Online options and open book exams

Before we get started



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During the webinar

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GOALS

- Build community awareness of open book assessment design in an online context
- Identify common challenges to creating and administering open book assessments
- Explore solutions and applied tips and strategies for using open book assessments
- Navigate and utilize support resources

AGENDA

1. Overview of online open-book tests
2. Panelists
3. Navigating Support Resources
4. Q&A and Barrier Busting

Introduction

Open book exams are a method of testing, usually in an unsupervised environment, that allows students to use textbooks, class notes, memory aids and other reference material to complete the exam.

These exams can assess a range of competencies but are especially useful for evaluating a student's ability for higher order of thinking over their ability to recall factual information.

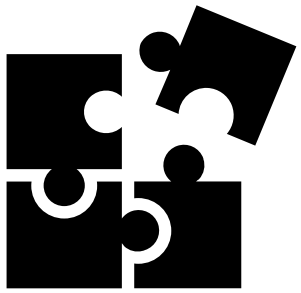
SETTING THE STAGE

As we move to fully online/distance teaching some questions instructors are asking about open book tests include:

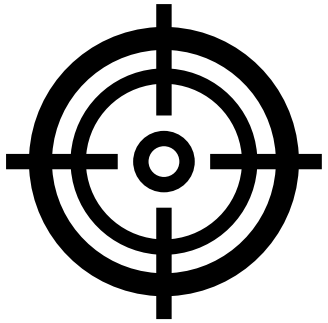
- Do they reduce or increase students' anxiety?
- Are they useful for testing students' higher-order thinking skills?
- What is the risk to academic integrity (AI) associated with open book exams?
- How do open book exams affect the students' study habits and long-term retention?

ONLINE TEST RECOMMENDATIONS

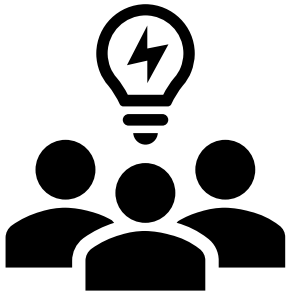
Shift from recall-oriented questions to analysis-oriented questions



Break assessment into smaller, lower-stakes tests or quizzes



Prepare students for structure and nature of test (e.g. open book ≠ easy)



Consider making the test collaborative

TIPS TO SUPPORT ACADEMIC INTEGRITY

Connect exam questions closely to the course materials & learning outcomes	Design questions based on real-world or fictitious scenarios	Cases or scenarios can serve as a base for a series of close-ended questions (e.g. multiple choice) and/or open-ended questions (e.g., short answer)
Provide relevant quantitative or qualitative data and ask students to interpret it	Have students submit their draft work/notes/etc. along with their final product (e.g., test or quiz)	Include a question (or questions) that ask students to reflect on their learning

OUR PANELISTS

We have 2 panelists to speak to their experiences with open book testing:

Franco Taverna, Associate Professor, Teaching Stream, Human Biology

Jenn Murdock, Professor, Teaching Stream, Economics

HMB200H Introduction to Neuroscience Franco Taverna

- 2nd year core course for Neuroscience major/specialist
- Human Biology Program
- 240 students (20201 – finished course online with take home final assessment)

Leaning Objectives (selected)

- Learn and remember principles of neuroscience….
- Apply principles to explain behaviours (disorders) in molecular/electrochemical/network/genetic terms
- Apply principles to predict behaviours (e.g. disorders)

CHALLENGE (online exams)

Offer online midterm exam in summer version of course (not final)

- Timed exam, not much time to “cheat”
- MC plus 1 short answer question (AI prevention: scrambled, cannot backtrack etc.)
- Some tech issues each time, but smaller class size makes it manageable

Biggest challenge for April? Chose not to offer 2-3 hour timed exam… (many reasons…)

Therefore “take home” type assessment offered.

- A.I. (emphasize students own work, but open book)
- Question type (much less regurg, much more application)

“Solutions”

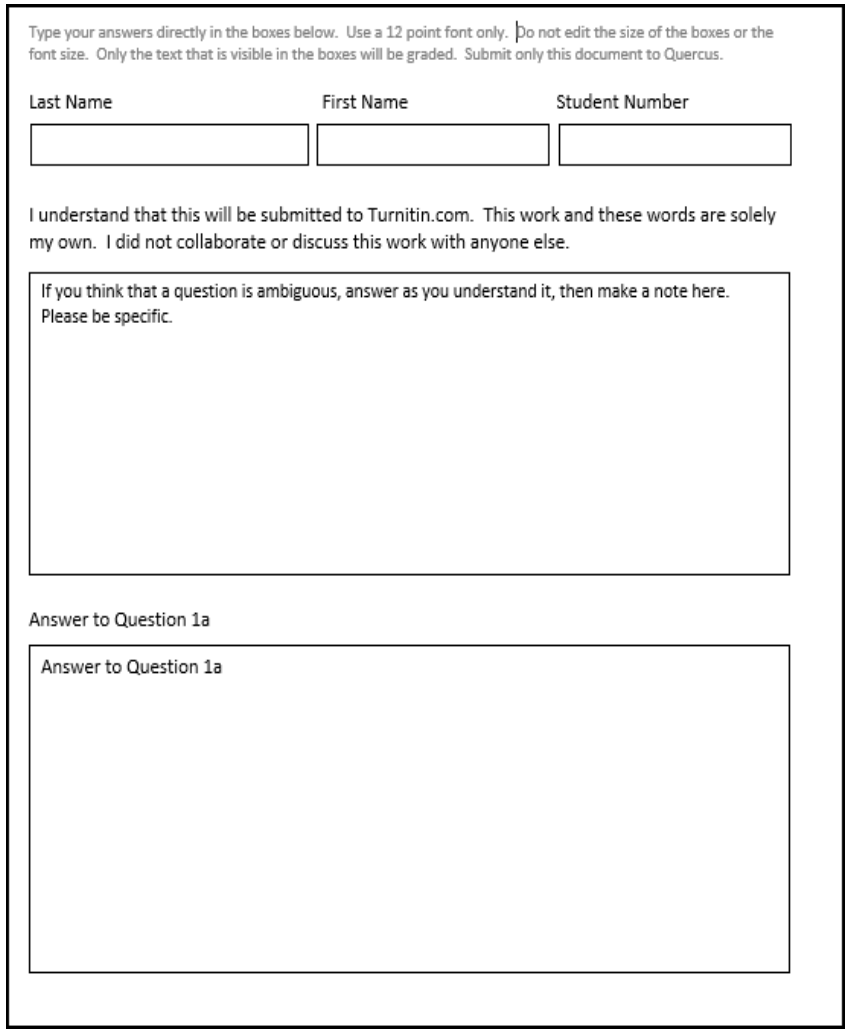
Used assignment tool of Quercus…

- Students downloaded the question sheet
- Students filled in answer template
- Students submitted answer sheet to Q (+Turnitin)
- 10 days to finish exam

A.I.

- Clear statement and discussion of misconducts
- Submit to turnitin (0 similarities)

“Given that the class had many many days to complete the exam, I suspect that many of my classmates probably cheated” 21% agree or strongly agree



Type your answers directly in the boxes below. Use a 12 point font only. Do not edit the size of the boxes or the font size. Only the text that is visible in the boxes will be graded. Submit only this document to Quercus.

Last Name | First Name | Student Number

I understand that this will be submitted to Turnitin.com. This work and these words are solely my own. I did not collaborate or discuss this work with anyone else.

If you think that a question is ambiguous, answer as you understand it, then make a note here. Please be specific.

Answer to Question 1a

Answer to Question 1a

“Solutions”

Question 5 (8 marks) Phillip has tried drinking alcohol, smoking cigarettes, gambling at casinos, and even tried cocaine a few times. But he never feels the urge or craving to continue those addictive behaviours. Propose 4 ways his brain may be different (structural and molecular/signaling differences in 4 distinct brain regions) that would explain his lack of addictive tendencies.

Question 6 (4 marks) Suppose that during an electrophysiology experiment you discover that the dopamine axons that project to the nucleus accumbens AND striatum are expressing a mutated form of a voltage gated potassium channel that is much slower to close than normal. What effect on addiction related motivated behaviours would this mutation have? Explain your answer clearly.

Question type for open book

- Small part “describe/regurg”; most Interpretation/application (e.g. compare to typical, interpret a ‘mutation’…)
- ‘propose’ experiments to test the mechanism of a behaviour/observation…
- Interpret/conclude from adapted figure

“I think the test was well organized and fair. We couldn’t just cheat, we had to think. Even if part of the answer was in the slides, we had to connect everything that we had learned and apply it to a situation.”

LESSONS LEARNED

Lessons learned about implemented solution

- Answer template necessary (for Turnitin) – next time even less text on it
- 0.6 correlation coefficient between final “exam” and more traditional midterm exam (80% MC, 20% short answer)

What worked well?

- I much, much prefer these types of questions than MC questions
- Excellent learning outcome - how to answer these types of questions (compared to MC)

What could use refinement (if anything)

- Much much shorter time (and encourage preparation)
- 3 hours? 6 hours? 24 hours?

ECO220Y1Y with Prof. Murdock

- ECO220Y1Y, *Introduction to Data Analysis and Applied Econometrics*, a second-year, program-required course, September through April
  - 800 students typically divided into 5 sections: 2019/20 I taught 3 of 5 sections
  - ~25% of course grade allows *reasonable collaboration* with classmates, via versions: Weekly and DACM Quizzes (Quercus), iClickers, and Test Reflections
- To give a flavour, 2 of the 12 course learning objectives are:
  - Select and apply a suitable quantitative approach to a new situation while making your reasoning clear: may require sentences, precise statements of hypotheses, equations, calculations, fully-labeled graphs, diagrams
  - Effectively apply course concepts to a wide range of contexts from popular press articles to papers in peer-reviewed academic journals

Challenges in moving April 2020 exam online

- How to address concerns about academic integrity?
- How to restructure and rethink planned in-person, invigilated exam?
  - Technological limitations: what can be done in practice is short of my goals
  - Loss of efficiency and control: in-person students have 3 or 4 “screens” (pieces of paper) but online usually have only 1 screen and issues with images
  - Harder to be comprehensive because I cannot test as much as in person
  - Must re-allocate TA resources and deal with marking bottlenecks (tech limits)
  - Increased challenge of effectively communicating expectations with students
  - Students span globe and some in transit during exam period
  - Greatly increased demands (in substance, not # students) around Accessibility

Partial Solutions

- To address AI:
  - Via course vote, reduced weight from 28% to 15% of the course grade
  - Prepared about six versions of each of the 18 questions, used timers, and required signed AI statement, adapted from A&S template
- To address restructuring (and more on AI):
  - Divided 3-hour exam into three parts, each with a timer, could do over 7 days
  - Said open book (with advice!) and gave *Supplement* one week in advance
    - Only allowed reasonable collaboration wrt the *Supplement* prior to assessment window
  - Used both Quercus Quizzes (Parts 1, 2, and 3) and Crowdmark (Part 3)
    - Parts 1 and 2 exclusively machine-marked questions (numeric, mcq, fill in the blank)
  - Extensive communication with students: detailed Quercus page, frequent announcements, daily TA office hours, and overview video of final assessment

Some Lessons Learned

- Even with two platforms (and students scanning), surprisingly smooth
  - But we had prior experience: some inexperienced courses had bumps
- AI concerns only partly addressed
  - A few students copied (their answer was to another student's question version) and others did not do the assessment themselves (contracted it out)
- Refinements:
  - Use two parts, not three, and still use two platforms
  - Use no backtracking in quizzes and 10-12 hours (or 2 sittings), not 7 days
  - Increase open-ended questions, but *cannot* upload of too many pages (5 max)
  - Distribute and keep weights low (~10% of grade), boost two-staged tests

Thought-Provoking Quotes, April Exit Survey (7 distinct students)

- *I still think in-person exams are better. It takes less time, and there's nothing like that sharper focus from the adrenaline rush of sitting in the exam centre.*
- *I just found myself preparing less since I felt it was easier than an in person three hour final even though it was repeatedly stated that the difficulty would be the same.*
- *The handwritten and scanning was nice because that felt more like a real exam.*
- *I did not like that for half of the exam, there was no opportunity to show our work and obtain partial credit. I realize you probably made the questions a little bit easier for this very reason, but I would have preferred more challenging questions with the ability to show work and get partial credit.*

Exit survey ran from April 17 (due date of online final assessment) through April 27, 2020: 51% response rate.

Thought-Provoking Quotes, cont'd

- *I like Part 3 the most (because that gives the lowest room for cheating), and … the weight should be higher. Also, I love the fact that time constraint is notable, which definitely gives less room for unallowed collaborations.*
- *I prefer writing exams in person b/c I can focus more on exam in paper than electronically. And even said collaboration are not allowed, online assessments still can not forbid in all sorts of collaborations, therefore, very unfair for those who really studied hard and finished the assessment individually and being academically honest.*
- *I think if you could allow collaboration, but make the tests a bit harder, that would be pretty conducive to your student's learning. As many of us like to discuss quercus quizzes, it helps me, personally speaking, understand it more as we discuss and go through each problem.*

Specific Support Resources

Tips on designing open book tests (CTSI)

Tips for creating open book exams (Indiana University)

A guide for academics - open book exams (University of Newcastle)

Take home and online exam tip sheet (Student Life – U of T)

General Support Resources

CTSI website: https://teaching.utoronto.ca

Upcoming events: https://teaching.utoronto.ca/events

Quercus Support Resources: https://uoft.me/qresources

Divisional Support: https://uoft.me/qsupportcontacts

Questions: q.help@utoronto.ca

Questions and Comments

Thank You