Review of the Open and Closed Book Examinations – Progress Report

Background
At its 18 April 2013 meeting, University Council asked Academic Senate to review the University’s use of open and closed book examinations. At its 17 June 2013 meeting, the Senate Learning and Teaching Committee established a working group to consider this matter. The preliminary data collection phase of this process is now complete, and the working group on open book examination is scheduled to meet on the 14th November 2013 to consider the data collated, examine whether further information or expert advice should be sought, and to progress these discussions.

Preliminary Findings
The summary information from a survey of Universities (5 international, 8 Australian GO8, 5 Australian non GO8) and professional bodies is attached to this item for reference. We have also completed a survey of the, relatively sparse, primary academic literature addressing the specific comparison between open and closed book examination.

In summary, our survey of the academic literature indicates that:

1) Open book and closed book with note card examinations are universally recognised to reduce student stress and anxiety.
2) In cases where examinations are consciously designed to test conceptual understanding and higher order thinking, no significant difference has been found in results gained in open and closed book examinations.
3) Open book examinations, when carefully designed, can reduce student reliance on rote memorisation, increase long-term retention and promote deeper learning.
4) Open book examinations align better with the constructivist philosophy and constructive alignment principles that are becoming the dominant mode in higher education pedagogy and regulation.
5) Web based open book examinations can improve student engagement and performance, through the use of real world problems and multimedia artefacts, but at this time it is not clear that such examinations can be made as secure as traditional invigilated exams.
6) The use of open book examination materially influences the way that students prepare; those who expect to be able to “look it up on the day” may be persuaded to prepare less, with adverse consequences.
7) Closed book with note card examinations confer some advantages over open book ones. In particular, they encourage students to engage more deeply with material in advance, by asking them determine what information they will need to take with them into an examination.

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1 closed book examinations in which students are allowed, and encouraged, to prepare a “note card” of information which may be consulted during the exam.
It would appear that in the past few years quite a lot of published work in Educational Psychology has examined the positive value of “learning by heart” memorisation. In particular, this work has highlighted the key importance of memorisation in many scientific, technical and mathematical fields, medical disciplines and linguistics (to name a few). Given that one significant argument against closed book examinations is based upon a philosophical objection to rote memorisation, this is probably a line of research that should be followed up more carefully.

Of the 20 Universities examined, none had policies that encouraged one form of examination over another. Most professional bodies we have examined did not provide information about their attitude towards closed book examinations. However three of the four that did provide this information specifically stipulate that some, if not all, professional accreditation examinations must be closed book.

The Senate Learning and Teaching Committee will be reviewing the Assessment, Grading and Final Examination policies over the next 3 months. The working party on open book examination will be asked to consider whether these policies should be amended in this review to support and encourage greater use of open book examinations of various kinds.

RECOMMENDATION
For discussion.

Presented by
Professor Dominic Verity
Chair of Academic Senate
Question - Review the University’s examination policy in regard to the use of closed book examinations, having regard to the international position on professional examinations.


Of the universities reviewed none of them have an explicit open-book / closed book examinations policy. Indeed, if the organisations consulted only CPA Australia dictates that the style of examination should be closed book (this for the Singapore taxation examinations). The style of the examination is sometimes referred to in the assessment policies of Universities, but is generally referenced when discussing what additional materials may or may not be brought into an examination room during an exam.

BENCHMARKING

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNIVERSITIES and PROFESSIONAL BODIES</th>
<th>COMMENTS</th>
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| Additional materials | INTERNATIONAL | Warwick University (UK)  
University of Otago (NZ)  
Dalhousie University (Canada)  
University of Ottawa (Canada)  
University of Auckland(NZ)  
GO8  
University of Adelaide (GO8)  
ANU (GO8)  
The University of Melbourne (GO8)  
University of Queensland (GO8)  
University of Sydney(GO8)  
UNSW(GO8)  
University of Western Australia (GO8)  
Monash University (GO8)  
NON GO8  
Deakin University  
Griffith University  
Newcastle  
UWS  
University of Wollongong | INTERNATIONAL UNIVERSITIES  
Warwick University’s (UK) Regulation 10.2 states that: Candidates are forbidden to take into an examination room any books, papers, calculators, or any information storage and retrieval device, or any case or bag ...unless there is an express provision otherwise in the case of a particular paper.  
University of Otago (NZ) – Examination Rules 4(a)  
No candidate is to bring any book or other written or printed matter or blank paper or information in any form into the examination room except such as has been approved by the Senate. Rough working should be done in the examination book and clearly crossed out. All answer books and paper must be handed in.  
Dalhousie University Canada  
Official Examination Regulations  
No articles such as books, papers, etc. may be taken into the examination room unless provision has been made by the examiner for reference books and materials to be allowed to the students. All electronic computing, data storage, electronic dictionary and communication devices must be turned off, placed and sealed in the opaque storage bag on the exam writing surface. Calculators may be used at the discretion of the instructor.  
Academic Regulations  
16. Assessment  
16.1 Method - Examinations may be oral, written (closed or open book) under supervision, or take-home.  
University of Ottawa (Canada)  
Regulations  
9.4. Conduct of the examination (Approved by the Senate on April 8th, 2013)  
......  
Students may not bring into or take away from the examination room any examination booklets.  
Until otherwise indicated in writing, the use of books, notes, mathematical tables, dictionaries or any other reference tools is not allowed. |
Preparing for closed book exams

Closed book exams at the postgraduate level are designed to test your knowledge, understanding and ability to critique information that you have synthesised from a variety of sources. Often they also assess your ability to apply that information. The format of postgraduate examinations should enable students to demonstrate an in-depth understanding of the topic areas that they are particularly interested in.

University of Auckland (NZ) - Preparing for closed book exams

University of Adelaide – Academic Honesty Policy (both open and closed)

4.3 Examination materials

Only bring to an examination those items which you need to undertake the examination.

b. Materials permitted

You may bring to each examination:

i. a small purse or wallet, including keys, money, ID/credit cards
ii. one clear bottle of clear water, up to 1-litre in size (water is available at the exam venue)
iii. a bag, provided it is kept closed and stored under your allocated desk for the duration of the examination. Bags are subject to inspection at any time before or during the exam.
iv. any materials specified by the Course Coordinator, as set out in the rubric of the examination paper
v. any materials permitted specifically for you under the Reasonable Adjustments to Teaching and Assessment for Students with a Disability Policy.

c. Materials not permitted

You must not bring into the examination venue any material which enables, or has the potential to enable, you or others to cheat or to gain an unfair academic advantage. Examples of materials which are not permitted include but are not limited to:

iii. dictionaries, unless specifically permitted by the Course Coordinator, and then only in accord with the Course Coordinator’s precise specifications
iv. textbooks, notes, reference materials, and printed or written matter of any kind, unless specifically permitted by the Course Coordinator, and then only in accordance with the Course Coordinator’s precise specifications
v. electronic devices, unless specifically permitted by the Course Coordinator, and then only in accord with the Course Coordinator’s precise specifications. Such devices must be self-powered, and operate quietly.

ANU (both open and closed book)

Permitted materials

All electronic devices, including (but not limited to) mobile phones and electronic dictionaries, are not permitted in examination rooms. Such items are prohibited even if the examination is ‘Open Book’ or ‘No Restrictions’.

Candidates whose first language is not English may, with the written approval of the ANU College/school/department/centre responsible for the course, use dictionaries during the examination. If you wish to use a dictionary and it is not listed on the ‘permitted material list’ for your examination, please speak with the ANU College/school/department/centre administration offering the course.

Use of dictionaries as permitted materials:

No electronic dictionaries allowed. If the permitted material is listed as ‘Dictionary - Any’ then any dictionary (except electronic dictionaries) is permitted for that examination. If the permitted material is listed as ‘Dictionary - for students with written departmental approval only’ then students are required to deliver their dictionary, with the appropriate approval letter, to the Examinations and Graduations Office at least one session before the scheduled time of that examination, and no sooner than one day prior to the examination.

Code of Practice for Teaching and Learning

5.3 In relation to assessment and feedback

5.3.1 In general, make past examination papers available routinely to students

There is no prescribed internal ANU policy in relation to past exam papers. The practice is however encouraged, provided there is extensive modification to ensure that the examination assesses knowledge on a subject as well as conceptual understanding.
Melbourne University – Examination Procedure (MPF10285) (both open and closed book)

7. Authorised material

7.3 Items specifically indicated on the examination cover sheet and academic materials permitted for use during the examination may also be brought into the examination room. These items may be specific (e.g. a particular brand and model of calculator; a particular edition of a dictionary), or general (e.g. any calculator; any dictionary).

7.4 Where an examination has been nominated as open book, authorised materials include hard copy textbooks and course notes, and any other materials specified by the subject coordinator and indicated on the examination cover sheet. Electronic devices are not authorised materials unless specifically permitted by the subject coordinator.

Melbourne University – Guideline for reviewing Assessment

Should the examination be unseen, timed, and closed-book, or would another approach be better?

While there are often good reasons for examinations of this type, there is also a tendency for this to be the default form of testing. It is worth considering variations on this approach. For example, teachers in some subject areas find that closed book examinations limit their questions to those that can be answered on the basis of factual recall – memory. In response, they adopt more ‘open book’ approaches, allowing students to access detailed information during the examination (from books or other resources) and to then use this as the basis for solving integrative, problem-based questions.

University of Queensland (both open and closed book)

Examination procedures

5.4 Use of materials and equipment in examinations

The front cover of the examination paper lists details of any additional material or equipment that is authorised for use by students during the examination (see permitted materials below). During the examination, material brought into the examination room will be checked by an examination supervisor to confirm that it is permitted. Material or equipment brought into the examination room that is not on the list of permitted materials may be treated as “unauthorised material” under PPL 3.60.04a Student Integrity and Misconduct – Policy.

5.4.1 Written or printed material

The following paragraphs describe types of examinations with respect to written or printed materials that may or may not be permitted in an examination room. Written or printed materials may include dictionaries, texts, notes, annotations.

Open book: Any additional written or printed material is permitted.

Closed book with specified materials permitted: The specific items of written or printed material permitted in the examination room and details regarding the extent to which it may or may not be annotated will be described on the question paper. Any item not listed on the question paper will be regarded as not permitted.

Closed book: No additional written or printed material is permitted.

University of Sydney - all examinations are presumed closed book unless otherwise stated in the notes column of the timetable.

University of NSW

University of Western Australian (both open and closed book)

Monash University – (both open and closed book exams)

As per the Exam rules

NON GO8

Deakin University (Open and closed book exams)

14. The University conducts both closed book and open book exams. It is a student’s responsibility to confirm prior to an exam whether the exam is...
This information is available in Unit Guides.

15. In a closed book exam, notes of any kind, including those written on rulers, calculators or calculator covers, or on parts of the body, are not permitted and any incident will be reported to the relevant Faculty.

16. In an open book exam, students may bring in any hardcopy written reference material, including hardcopy dictionaries and textbooks with any annotations. Such materials are not permitted in closed book exams.

**Griffith University**

**Use of materials in examinations**

Materials permitted in an examination will be specified on the Examination Timetable and on the Examination Paper. It is the students’ responsibility to ensure they are aware of the materials permitted for each of their examinations.

13.2 Closed Book Examination - Students are not permitted to use any reference materials during the examination.

13.3 Closed Book Examination with Notes - Students are permitted to bring notes to the examination. The number of pages, font size and type of notes permitted will be specified. Any further restrictions will be noted on the Examination Timetable and on the Examination Paper.

13.4 Open Book Examination - Students are permitted to use any number and any type of written reference materials, including; textbooks, reference books, lecture notes, student notes, articles, journals, extracts etc.

13.5 Open Book Examination with Restrictions - Students are permitted to use a restricted number and/or type of reference materials during the examination. Details of the permitted reference materials and/or the restrictions will be noted on the Examination Timetable and on the Examination Paper.

**University of Newcastle**

**Course Management and Assessment Procedure Manual**

18.5.2. Books and notes may be used by students in an examination if approved by the appropriate Course Coordinator. The Course Coordinator must:

i. advise students in advance and in writing of the specific book, or books or a detailed description of the exact nature of the notes that can be used, including allowable content, the number of pages, single/double sided print, etc;

ii. include a detailed description of the book, or books and/or the type and form of notes permitted on the Examination Cover Sheet and use the following categories:

a. Closed Book. No materials may be taken into the examination room.

b. Open Book. Any written material may be taken into the examination room.

c. Restricted Open Book. Only specified written materials may be taken into the examination room.

iii. be mindful of changing technologies

**UWS**

**Examinations Policy**

Closed Book Examination - an examination where the student answers only from memory or material provided in the examination paper. All examinations are closed book unless specifically advised in the Learning Guide.

**University of Wollongong** (open and closed book examinations)

**PROFESSIONAL BODIES**

**CPA (Chartered Practising Accountants) Australia**

Exams are "open book", for Singapore taxation, the exam is "closed book", but candidates can take into the exam the Tax Acts as referenced under the recommended tests section of the Singapore Taxation study guide.

**Legal Profession Admission Board of NSW**

Permitted Materials in Examinations
Students should refer to the Exam Cover Pages page and the specific cover page of the examination they are about to take for information regarding the permitted materials for each subject. Current examination formats include open book, closed book and closed book with attachments.

Psychology Board of Australia
Examination
Candidates are not permitted any reference material (electronic or hard copy) during the examination. The examination is multiple choice, which is deemed suitable to test applied knowledge. The exam allows candidates to demonstrate psychological reasoning. Although the questions can rely on a factual knowledge base, the examination relies more on the application of that knowledge to actual psychological cases.

AMC – Australian Medical Council
(The Australian Medical Council (AMC) assesses and accredits basic medical education courses; that is, courses that lead to a qualification that permits the holder to seek general registration as a medical practitioner. The Standard Pathway is for International Medical Graduates seeking general registration with the Medical Board of Australia. You need to have a primary qualification in medicine and surgery awarded by a training institution listed in the current International Medical Education Directory (IMED) of the Foundation for Advancement of International Medical Education and Research (FAIMER) to be eligible to apply to the AMC for assessment under this pathway. The Standard Pathway has two alternative processes leading to the AMC Certificate:
Part 1 of Standard Pathway (AMC examinations). Assessment is by examination only—the AMC CAT MCQ Examination and the AMC Clinical Examination. Most non-specialist applicants will be assessed through this method.

*****No books or examination material may be used in the AMC MCQ examination. Candidates found to be giving, receiving or recording information during examinations will not be permitted to continue in the examination and may forfeit their eligibility to sit future AMC examinations. Candidates are advised that NO mobile telephones, recording devices, microphones or textbooks are to be taken into the examination.

ARTICLES

A number of recently published academic papers have compared open and closed book examinations. These have generally focussed upon analysing reasons why a closed book examination might be preferred to an open book one (and vice-versa), the impact that examination style has on different groups of students (concentrating on factors such as stress) and the way that examination style influences the way that academics construct examination questions.


“Finally, it should be pointed out that the present paper focuses on how students prepare for examinations in general and on overall achievement rather than on preparation and achievement on the open- and closed-book examination separately. Thus, our findings may be mediated by personality traits to the extent the study focuses on the approaches usually adopted by students (e.g. Chamorro-Premuzic & Furnham, 2008; Diseth, 2003; Furnham, Monsen, & Ahmetoglu, 2009). However, the present study provides indications that the students’ preference for the open-book examination goes hand in hand with the deep approach followed by a severe lack of strategic elements and low grades. A future fine-grained study possibly employing both qualitative and quantitative methodology may illuminate the deep profile of students and how they go about learning. Such a study may also shed light on inconsistent research findings about whether the open-book examinations are of benefit to weak and unmotivated (Honkimäki et al., 2004) or good students. Our study seems to provide indications that the preference for the open-book examination is mainly reported by deep learners who seem to be intrinsically motivated but unorganised in their study and achieve low. Our suggestion for the need for students to develop strategic elements that possibly lead to better grades for those who prefer the open-book examination seems conceptually valid and provides a lens through which educators could “see” the lack of links between the preference for the open-book examination and achievement. However, it should be pointed out that studies using qualitative methodology would reveal “who” benefit from the open-book examination and “how” and also the influence of students’ experiences of clarity and appropriateness of exam demands on learning and achievement.”
The use of open-book tests, closed-book tests, and notecards on tests in an introductory statistics course is described in this article. A review of the literature shows that open-book assessments are universally recognized to reduce anxiety. The literature is mixed however on whether deeper learning or better preparation occurs with open-book exams. This article reviews the Math 300 Statistics course testing policy which evolved from closed-book exams to open-book exams to closed-book exams with notecards. Our experience led to increased student enjoyment of the course while continuing to encourage deeper student learning.

The students’ ability to perform rote memorization was not considered important; in fact, the course tests and the final exam are intentionally designed to stress conceptual understanding and analysis, in addition to general knowledge. Advocates of open-book assessment, such as Boniface [2] suggest that open-book assessments: (1) reduce test anxiety; (2) develop student’s life-long learning ability (self-directed learning); (3) increase student achievement levels; (4) allow students to master course material by improving study skills; and (5) allow students to think more profoundly.

Theophilides and Dionysiou [11] summarize empirical results from a number of studies finding that open-book exams: (1) do not lead to higher student achievement in terms of test scores, especially when the examination requires higher-order thinking; (2) reduce test anxiety and lead to lasting outcomes; and (3) reduce the rote memorization of facts, thus allowing students to focus on deeper learning. Agarwal et al. [1] discusses how tests can enhance student learning and improve long-term retention, commonly called the “testing effect” [4]. Agarwal et al. points out that “the fact that students engage in cognitive processes that promote learning when taking a test is often overlooked in education.” [p. 861] Argawal et al. finds that both open-book and closed-book tests produce equivalent retention, and their experiments show that open-book tests result in initial benefits, but produce a level of long-term retention close to that of traditional closed-book tests.

Ioannidou concludes that there is no significant difference in total exam score between students who take closed-book exams and those who take open-book exams. She also finds that “the open-book examination does not measure different abilities than the closed-book examination when the exam is designed on the basis of critical thinking and higher order skills” [8, p. 136].

In sum, the present experiments demonstrate that test expectancy can influence study and test behaviours more than type of initial open-book or closed-book retrieval practice. Based on our results we recommend that teachers administer frequent quizzes, because testing improved longterm retention in both experiments reported here (and in many others; see Roediger et al., 2010). Of course we also recommend that teachers give closed-book tests or at least do not announce in advance that they will be giving open-book tests. Simply put, students’ study habits may be based, in large part, on the perceived difficulty of a final test; that is openbook versus closed-book test expectancy instructions appear to drive differences in delayed retention and transfer more than open-book versus closed-book initial retrieval practice. Even if teachers plan to give an open-book test, they would be better off not to tell students this fact and provide no specific test expectancy (or otherwise students will not study very much or very effectively for the test).

“University examinations continue to be dominated by closed-book, invigilated pen and paper tests. It is argued here that this is something of an anachronism given the human capital needs of a knowledge economy, not just because of the absence of technology that is used routinely in everyday business and commerce, but because this type of examination instrument is incompatible with constructivist learning theory that facilitates deep learning. It is further argued that a commitment to authentic assessment will pave the way for a
different type of final examination, where real-world problems are allowed to take centre stage, and multimedia can be harnessed to provide the learner with a more engaging experience. With greater engagement, this, in turn, can yield better results in terms of the depth of student learning. An ongoing research project with an open-book, open-web examination format at U21Global has yielded positive results in terms of student perceptions of this examination instrument compared with the invigilated, closed-book type exam. Importantly, OBOW (‘open-book, open-web’) is a transferable model that can just as easily be administered in an on-campus setting as online, and while there will always be a small number of students who will cheat, the main priority should be to focus on the higher quality learning outcomes of the majority, rather than set up an entire system to stop a small minority. Certainly, if there is roughly equal scope for cheating (as the results of two student surveys would seem to suggest), then it would make sense to opt for the model that maximises student learning.

A limitation of this study involves the methodological considerations pertaining to measurement issues, sampling units and the number of variables investigated. Subsequently, this limits the generalisability of the findings reported. Hence, replications with more representative samples of respondents and extensions of measurement scales are planned for the future.”


“Ushering in a new system of conducting examinations, the Central Board of Secondary Education (CBSE) has told schools across the country to implement open book examination from March 2014 and has also released study material for the same.

The main reason behind implementing this new system is to strengthen students’ analytical and theoretical skills by moving away from the trend of rote learning.”