Getting rid of midterms is hard: A retrospective

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Context

MATH 100 & MATH 101

- Large, multi-section courses (3500-4000 students each).
- 11 lecture sections of 450 students (weekly, 2h).
- 80 small class sections 60 students (weekly, 1h).

Midterms – the case against

Midterms are **stressful**

- Exams (in general) aren't not torture.
- Considering a full course load, students may have something like 10 midterms in something like 8 weeks.

Midterms are **logistically challenging**

- With 3500-4000 students, the final exam takes place simultaneously in 20-30 rooms including both gyms (SRC, OSB). This isn't realistic mid-term.
- Evening midterms have ethical concerns and may soon be outlawed.
- In-class midterms must take place over several days meaning the instructional team must write many versions of the midterm.

Midterms – the case for

Midterms provide **structure**

- Midterms provide deadlines for students to become proficient with a subset of the material.
- Midterms communicate expectations for the final exam.

Midterms provide **feedback**

- Midterms provide students with realistic information about how they are performing in the course.
- For some students, this is a strong signal that their study strategies need to change.

An alternative – practice/completion midterms

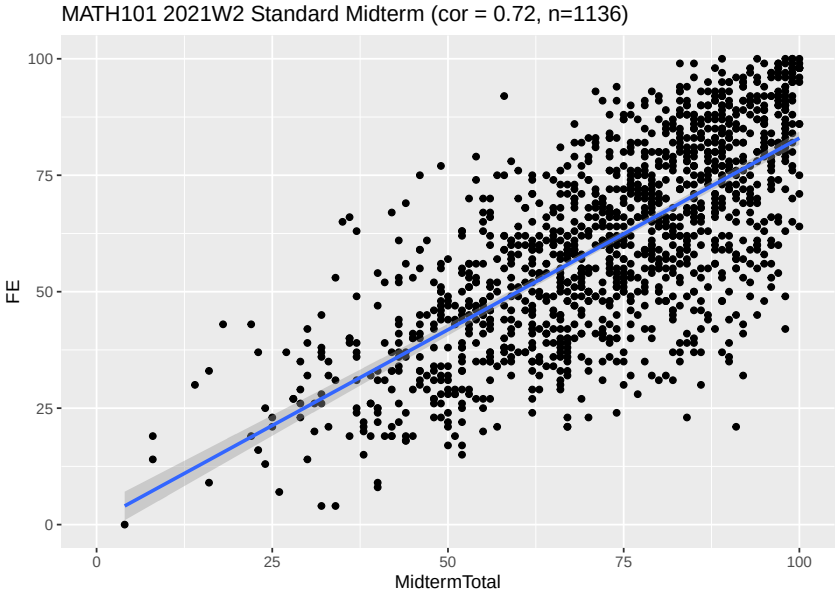
Pilot in 2021W2 in MATH 105

- To provide feedback students were given take home midterms.
- Students were given full points so long as they submitted a attempts at these "completion" midterms.
- The instructional team graded and returned the midterms as usual to provide students with all the feedback they would normally receive.

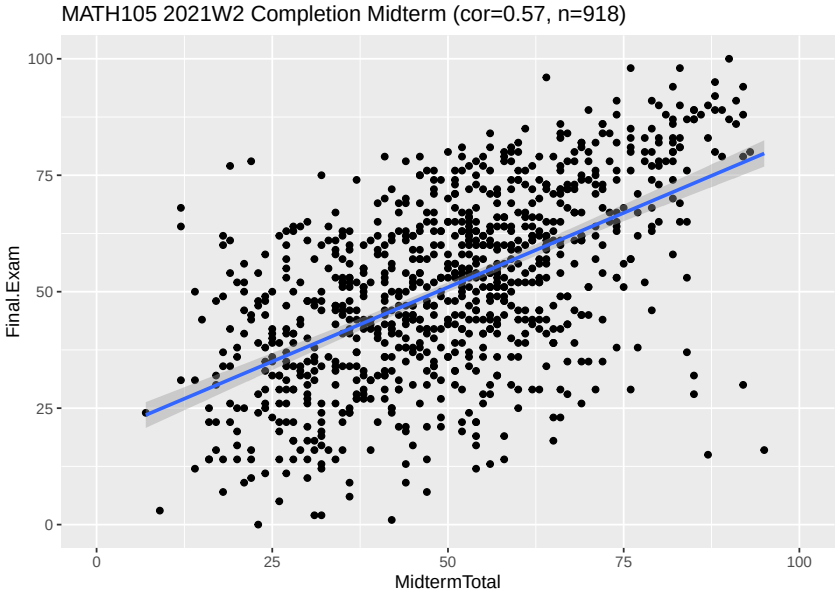
Grade data (see plots)

- The scores on the completion midterms (MATH 105 2021W2) didn't provide the same predictive power as for traditional exams (MATH 101 2021W2) but were still predictive.
- A group of students scored much better on the midterms than on the final exam – they did not get a good message about their performance in the course.

Pilot data – traditional midterm



Pilot data – completion midterm



Pilot data – survey

Student experience **survey** (survey of 112 students out of 1026)

- The test reduced students anxiety overall (84%) but increased anxiety for the final exam in about half of students (44%).
- Most students (76%) didn't study for the completion midterm as much as they would have for a traditional midterm. About half (46%) attempted less problems than they otherwise would have.
- Some students remark that they studied less, but to capacity and didn't cram – leading to a better learning environment.
- Some students suggest in-person completion midterms.

Push to production – MATH 100 & MATH 101

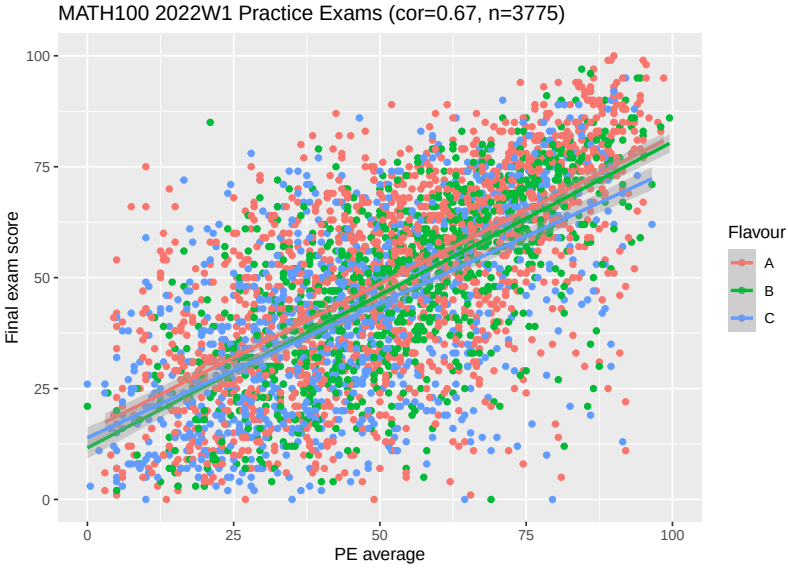
In 2022W1 and 2022W2 we two ran completion midterms in MATH 100 and MATH 101, respectively. We called them **practice exams**.

- Students could sign up for optional sittings of the midterm or submit them to Canvas.
- Sign up for the in-person sittings was about 30% in term 1 for midterm 1. This dropped to about 10% by term 2 midterm 2.
- Term 1 (MATH 100) midterm scores correlated well with final exam scores, but term 2 (MATH 101) midterm scores did not.

The course was split into three **flavours**

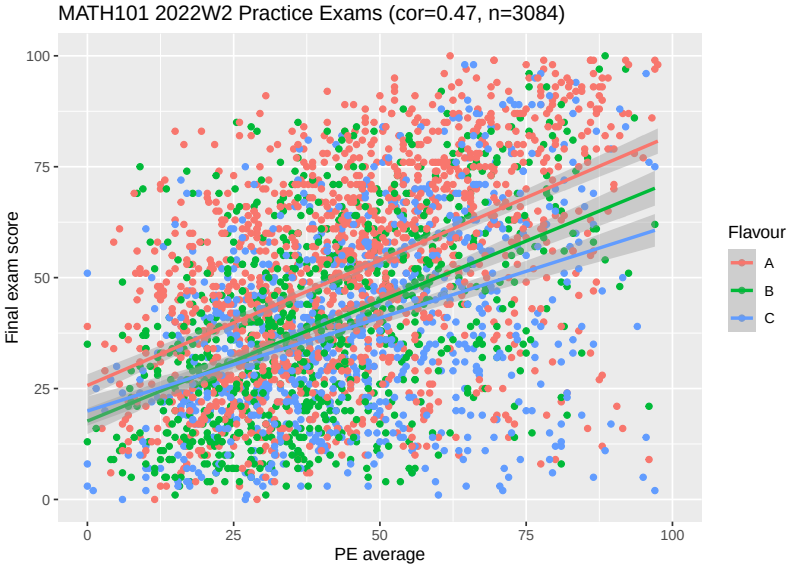
- A: Applied science
- B: Biological science
- C: Commerce science

Term 1 (MATH 100) Practice Exams



Flavour A: 0.66
Flavour B: 0.70
Flavour C: 0.61

Term 2 (MATH 101) Practice Exams



Flavour A: 0.50
Flavour B: 0.49
Flavour C: 0.39

Return to traditional midterms

Students' thoughts on midterms

- "Could implement midterms that count towards your final mark."
- "Having a midterm to check how I'm doing halfway through would have been nice."
- "Midterms should be brought back practice midterms don't help anyone."
- "The marking scheme is also perfect, with the practice exams being very helpful. I really appreciate that this mark scheme is focused on actual learning, not getting the right answer immediately every time."
- Students in focus groups remarked that the accountability of traditional midterms was valuable for them and their peers.

Return to traditional midterms

Instructors' thoughts on midterms

- Students had not grasped earlier concepts by the end of the course – attributed to lack of midterm studying.
- Despite the midterms being similar difficulty to the final exam, students were surprised by the difficulty of the final exam – attributed to the lack of attention payed to the midterms.
- The non-exam course components are (expectantly) well done by students (online homework, group written homework, engagement) – worry that students who need a signal aren't getting it. The average score "going into" the final exam was around 45/50.

A personal thought

- We need to provide structures and scaffold behaviours that will lead students towards the learning objectives. Students benefit from a clear and early signal about what will be required for success. Midterms can have this effect.

Suggestions or Ideas?

Leave me a note :)

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Or send me an email: colesmp@math.ubc.ca