DEPARTMENT OF MATHEMATICAL SCIENCES
University of Bath

Using Numbas for Formative and Summative Assessment of Health Students

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Overview

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About the Course

Research and Study Skills for Sport, Health and Exercise Scientists

- Year-long module for first-year students on Sport and Exercise Science and Health and Exercise Science degree programmes.
- Maths content taught from November to February, with exam in March.
- Approximately 150 students.
- Two Maths staff: one lecturer, one tutor.

Students' mathematical experience varies considerably:

- Maths entry requirement: GCSE Maths, at least grade 4 or C.
- Some students on the course did A level Maths.

Maths content: mechanics, trigonometry, vectors, functions.

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Rationale for using Numbas

- Repeatable assignments.
- Instant feedback.
- Well suited to calculation questions.
- Some appropriate questions already available.
- The exam closely resembles the homework assignments.
- Randomisation discourages copying.
- High student numbers, low staff numbers.
- Time invested pays off later (unlike marking written homework).

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Homework quizzes

Students were set weekly homework quizzes using Numbas LTI and Moodle.

How were the homework quizzes used? Did this meet my expectations?

Numbers of attempts:

- About 40 students didn't use them at all.
- Mean number of attempts per student ≈ 2.
- Typically 1–3 attempts per student.
- Some students consistently made about 5–7 attempts.

When were the attempts made?

- Additional attempts were usually made the week before the exam.
- Students who made only one attempt usually did so shortly before the exam.

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Final exam

Exam format:

- Online open-book,
- 1-hour time limit,
- Completed within a 48-hour window.

Questions were similar but not identical to homework questions.

I used data from the homework quizzes to classify the difficulty of different topics and question types.

Mean score: 83% (impossible to compare this with previous years)

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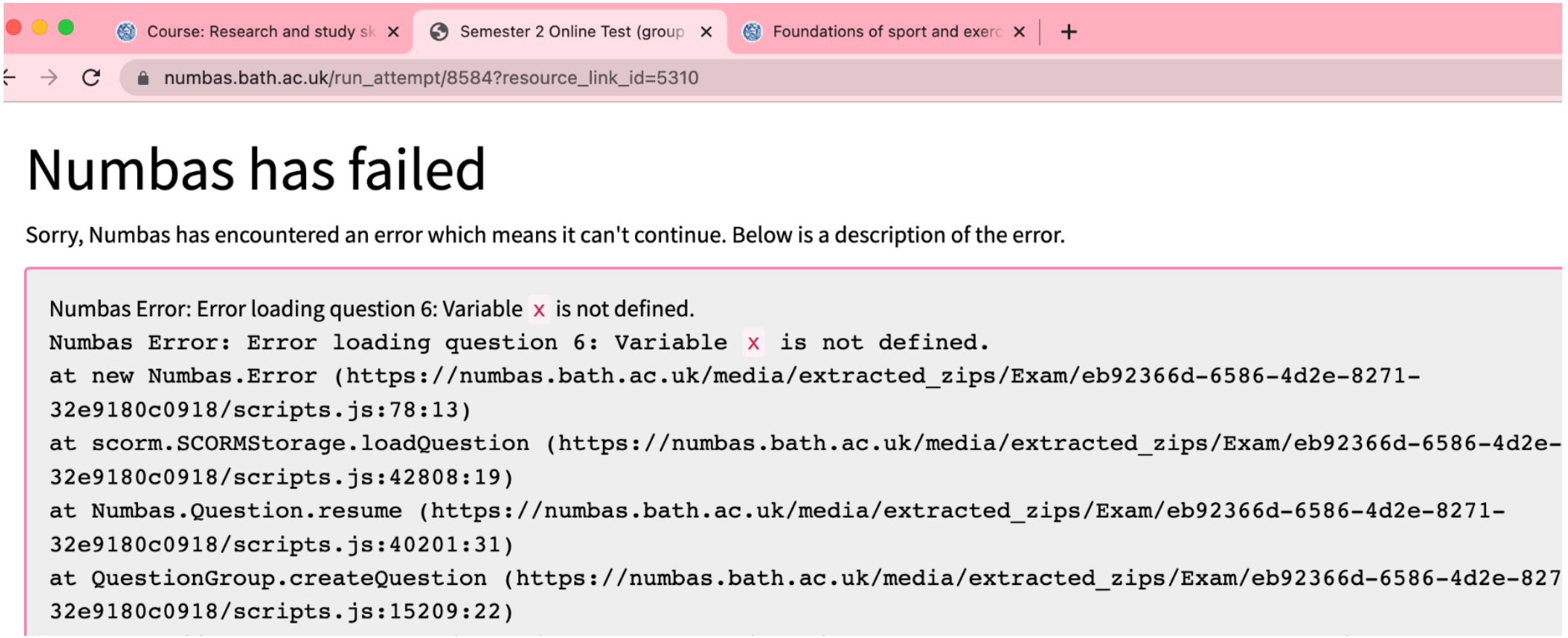
Final exam



- Students don't always report errors!
- It can be hard to tell if you can fix them yourself.

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