Numbas e-assessment in Covid times

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Xrun

NUMBAS

This talk

About Numbas

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How we've used Numbas during remote teaching

About Numbas

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🏆 **Randomisation**

Practise similar questions over and over again.

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A quick look at a Numbas test:

Demo test >

Units example

Loading...

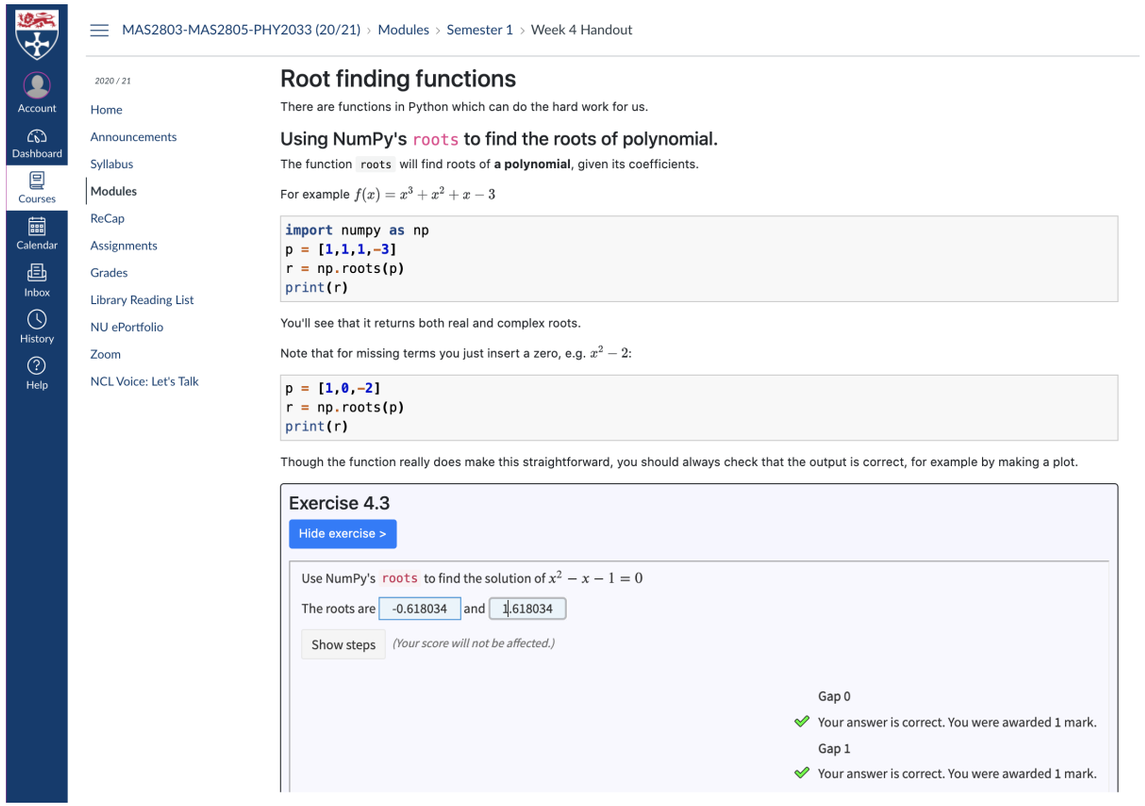
Remote learning trends

A few trends from the past year:

- More diverse and extensive formative assessment
- Dramatic increase in use in engineering
- Remote 'labs' using Numbas
- Hybrid tests
- Final exams

Formative assessment

We've seen more formative use; more appreciation of the "weekly quiz".



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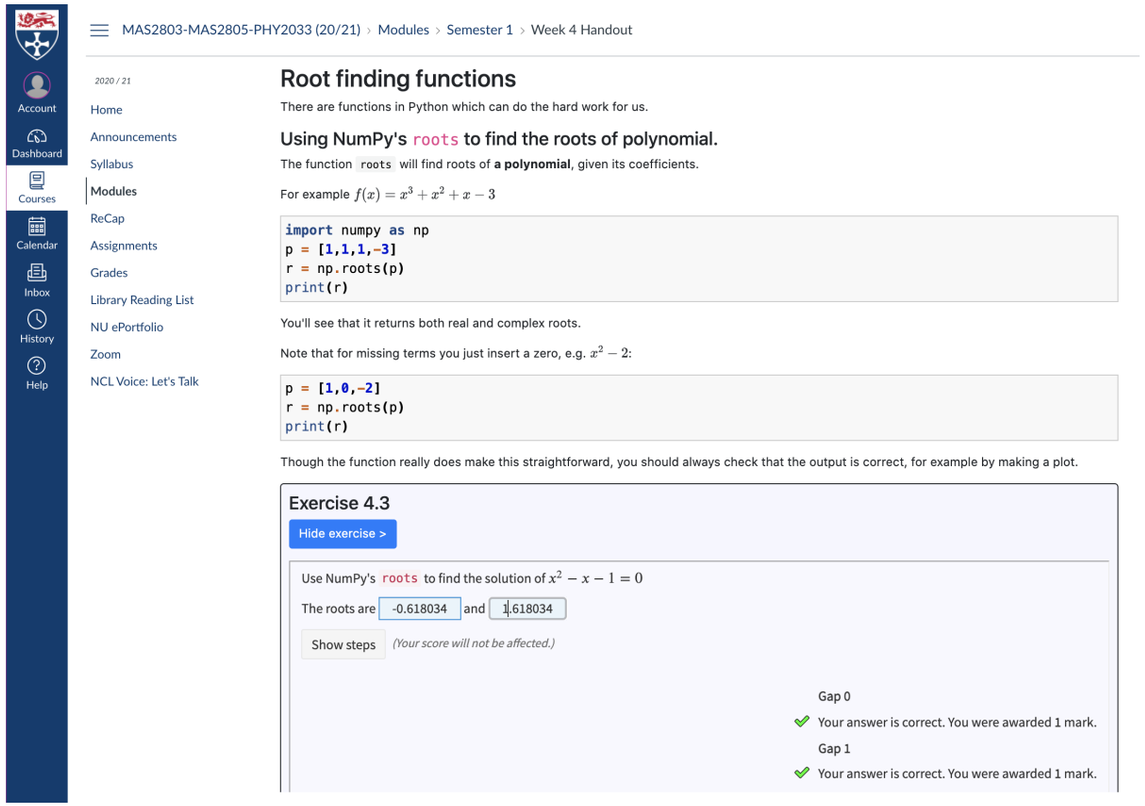

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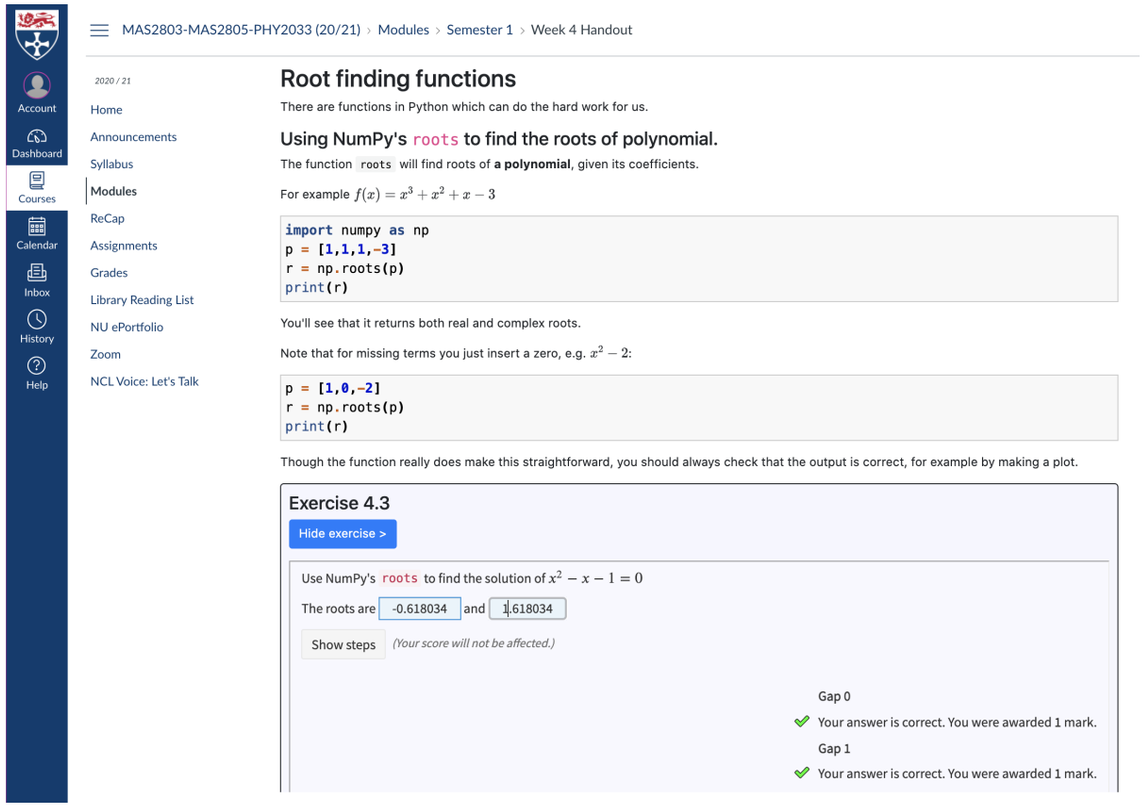
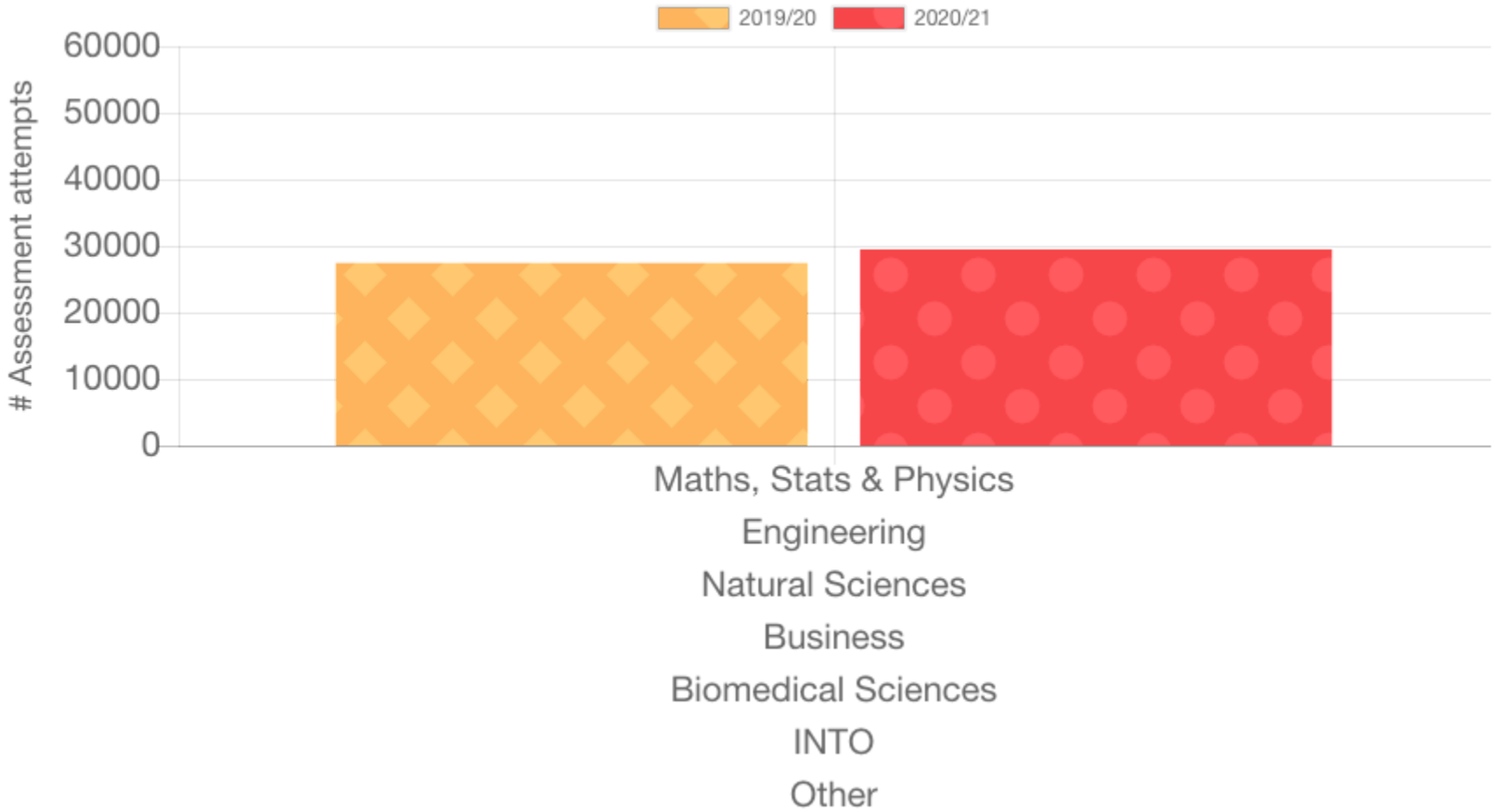
More diverse applications to ask questions involving Python, R, MATLAB, SPSS, Minitab.



Engineering uptake



Remote Labs

NUMBAS

Gears Lab

Question 1	Score: 0/2 Unanswered
Question 2	Score: 0/7 Unanswered
Question 3	Score: 0/29 Unanswered
Total	0/38

Pause

End Exam

Now wrap the string around the pulley on the 100 tooth gear and hang a weight carrier onto it.

Add masses to the value of 0.30kg (remember to include the mass of the carrier).

Single Reduction Part 2

Calculate the **Applied Force** (A, to three decimal places). Applied force = mg = ___ N (g=9.81m/s^2).

Calculate the **Torque** T_o applied to the gear (B, to four decimal places).

Calculate the **theoretical torque** T_i at the 20 tooth gear required to lift this weight, neglecting any effects of friction (C, to four decimal places).

Enter your answers into the table below before continuing (but do not submit answers yet!).

In the same way, suspend a second weight carrier from the pulley on the 20 tooth gear. Add masses until this second carrier just falls smoothly, taking about 3s to fall the full height of about 100mm. Insert this mass to the table below under D, and use it to calculate the applied force (to three decimal places) under E.

Calculate the torque T_i applied to this gear (F, to four decimal places).

Calculate the actual torque ratio - T_o/T_i - (G, to two decimal places).

Finally, calculate the efficiency as a percentage (H, to one decimal place).

Pulley diameter: 40mm.

Mass on Output Pulley (kg)	A: Applied Force (N)	B: Applied Torque T_o (Nm)	C: Theoretical Torque T_i (Nm)	D: Mass on Input Pulley (kg)	E: Applied Force (N)	F: Actual Torque T_i (Nm)	G: Actual Torque Ratio	H: Efficiency (%)
0.30								

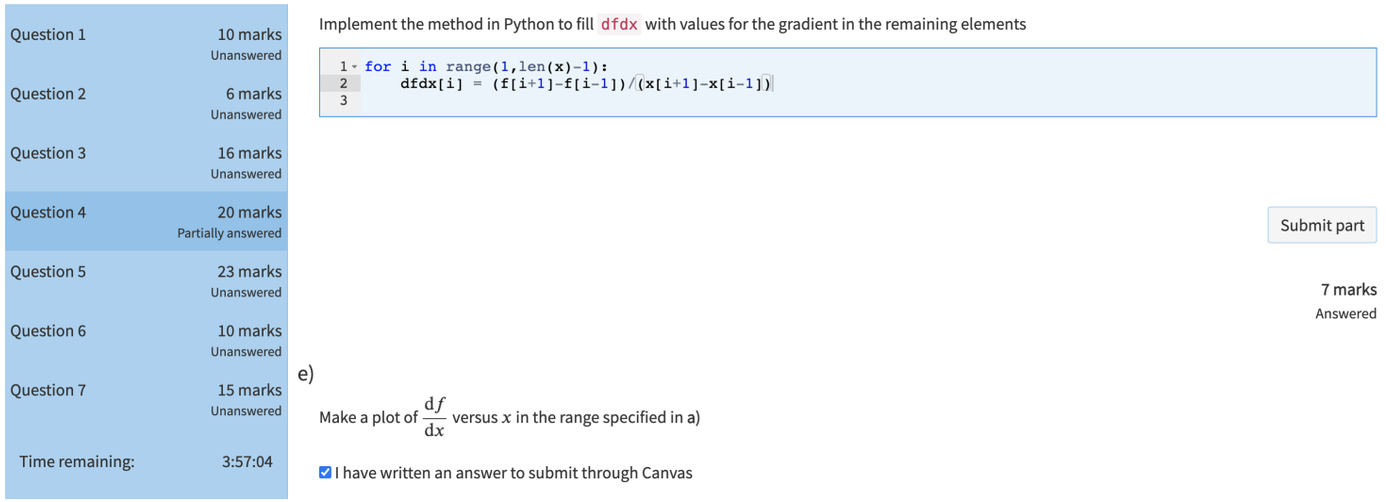
Submit answer | Score: 0/7 | Try another question like this one | Reveal answers

Stripped-down example

Hybrid assessments

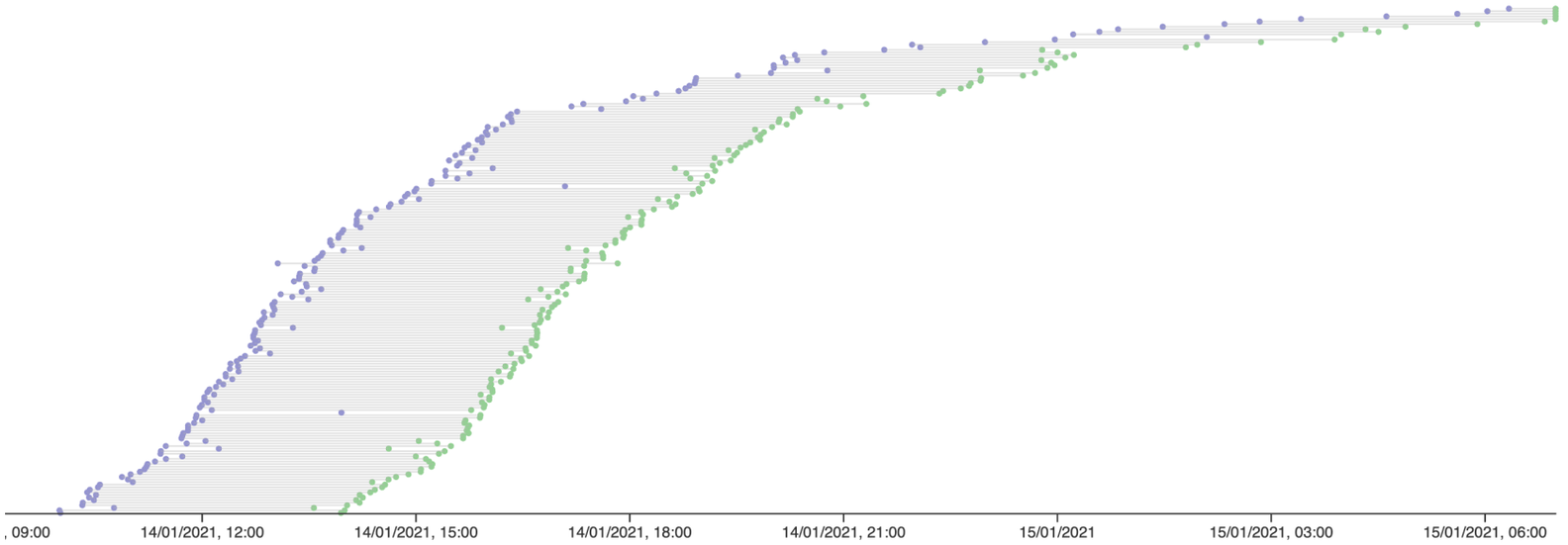
Used for in-course assessment and final exams

Typically 60-80% auto-marked. Focus manual marking where it is needed.

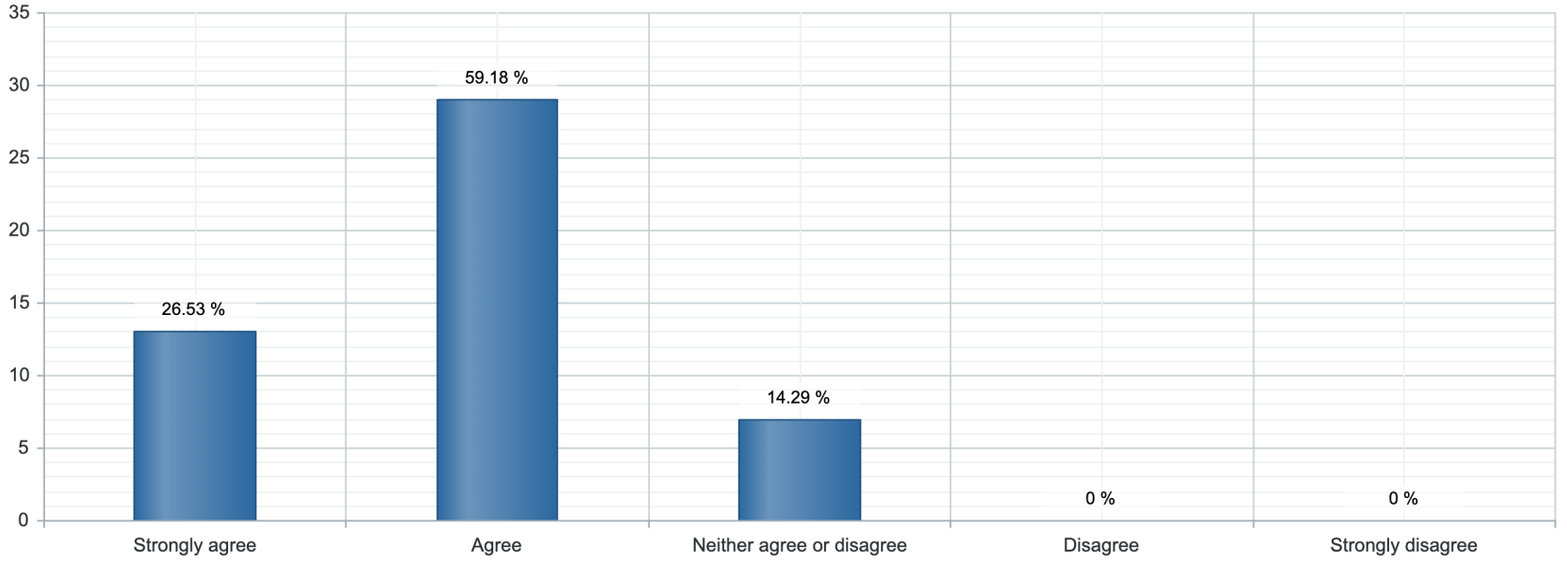


Final exams

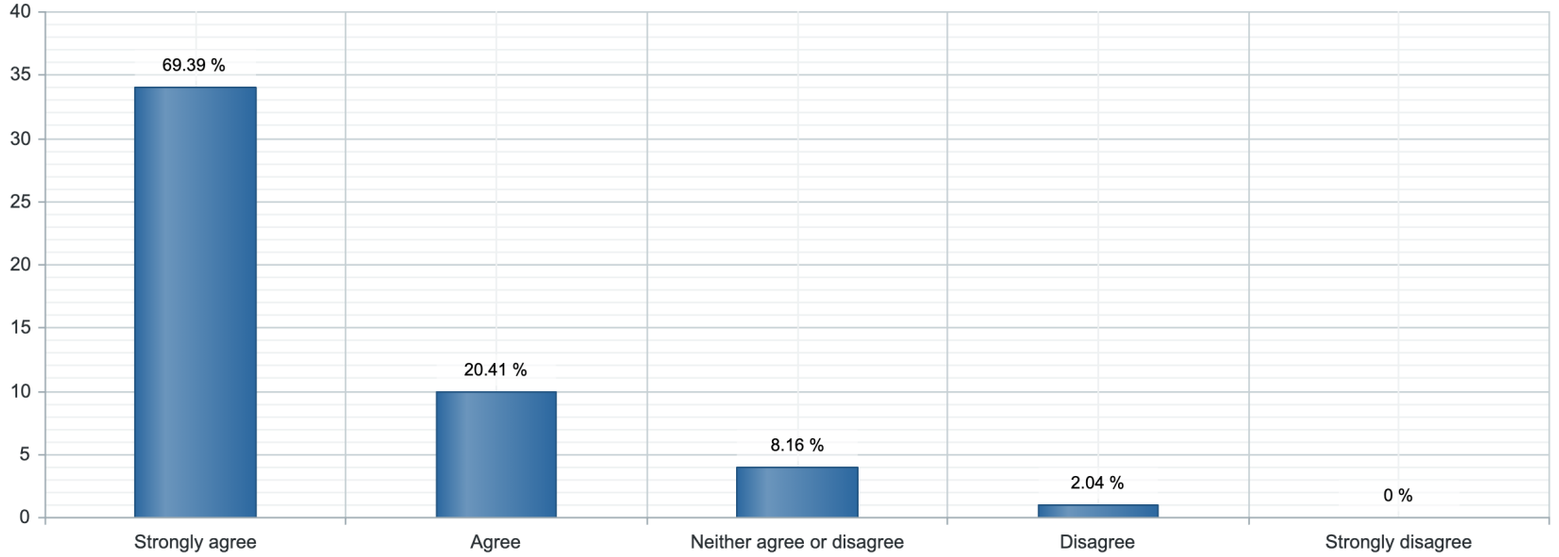
"4 in 24" hybrid format used across all of our stage 1 modules.



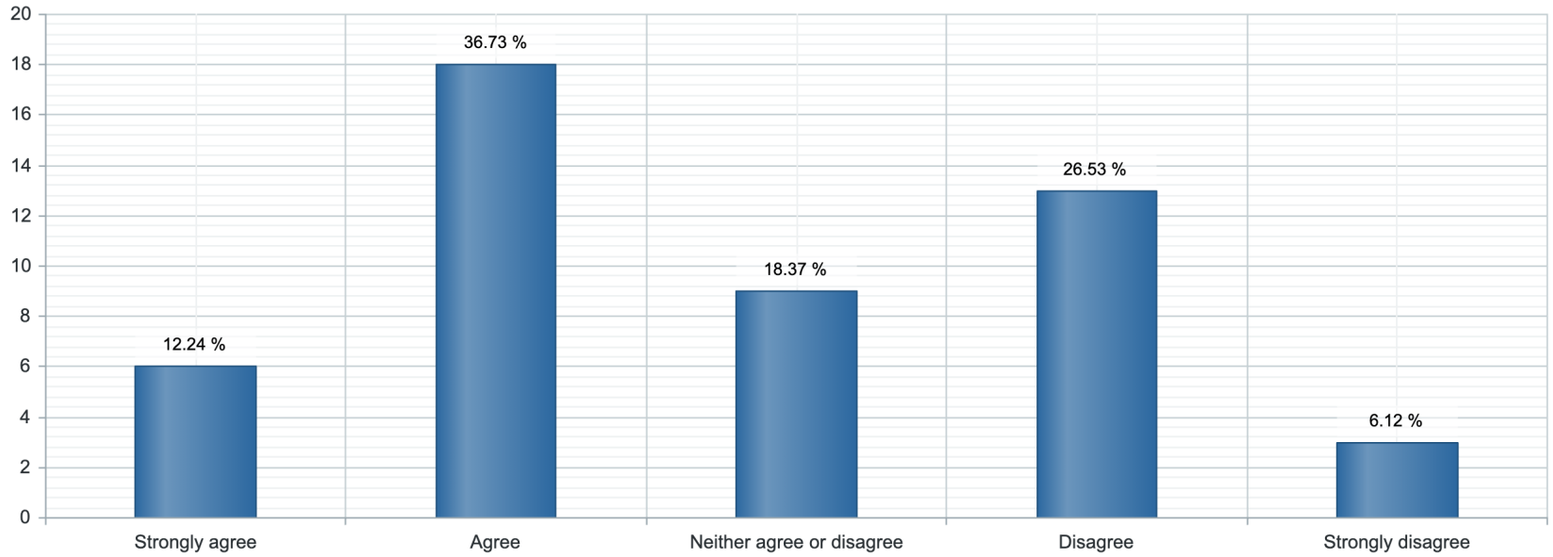
The format of the assessment(s) was easy to understand



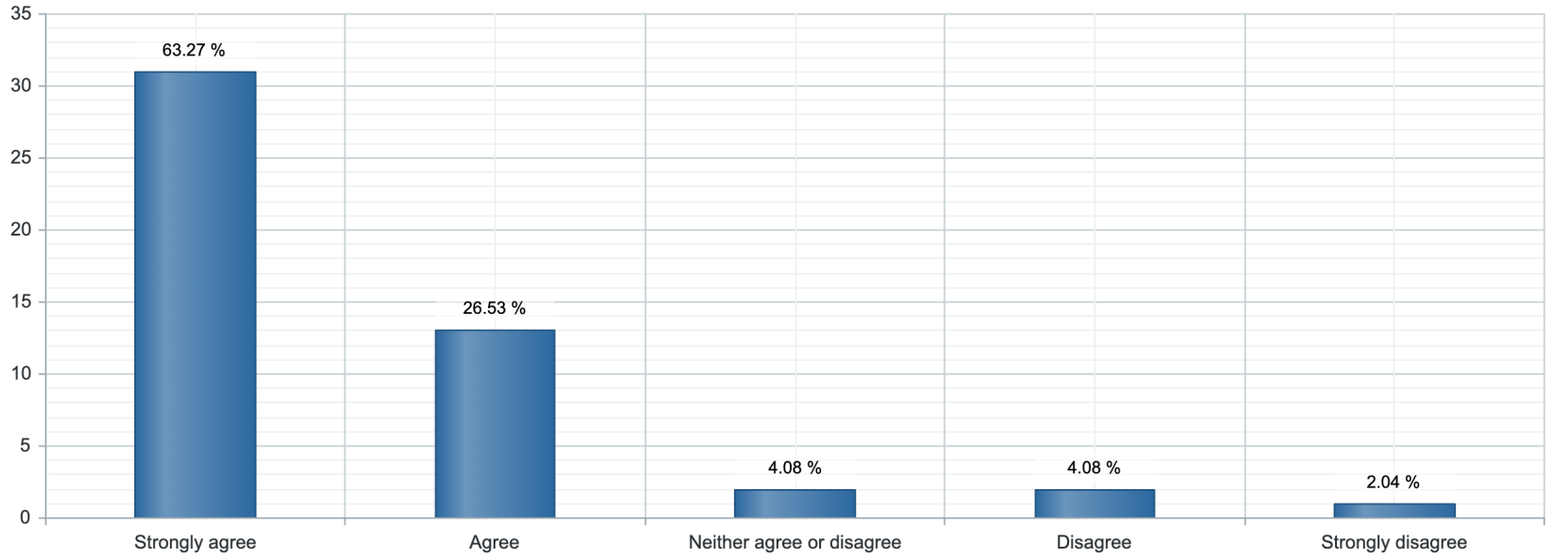
The flexibility of starting at any point in the 24 hours was useful to me



I had enough time to complete the assessment questions



I worked continuously on the assessment(s) during my timed period



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- being able to start whenever you want within the 24hrs gives much more flexibility and allows you to better plan out revision.

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- 4 hours was plenty time to Google and try figuring it out with friends

Using Numbas

Mathcentre public Numbas Editor at numbas.mathcentre.ac.uk

Open source LTI tool at numbas-lti-provider.readthedocs.io

Public Numbas Editor

Open to everyone.

5,000+ users at 1,000+ institutions registered on public editor.

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Or write your own.

Thanks for listening

Contact me at christopher.graham@newcastle.ac.uk

Useful links:

- Numbas Website numbas.org.uk
- Numbas Editor numbas.mathcentre.ac.uk