UNIVERSITY OF BIRMINGHAM | SCHOOL OF MATHEMATICS

Teaching and Tutoring in the Mathematical Sciences (in very different times. . .)

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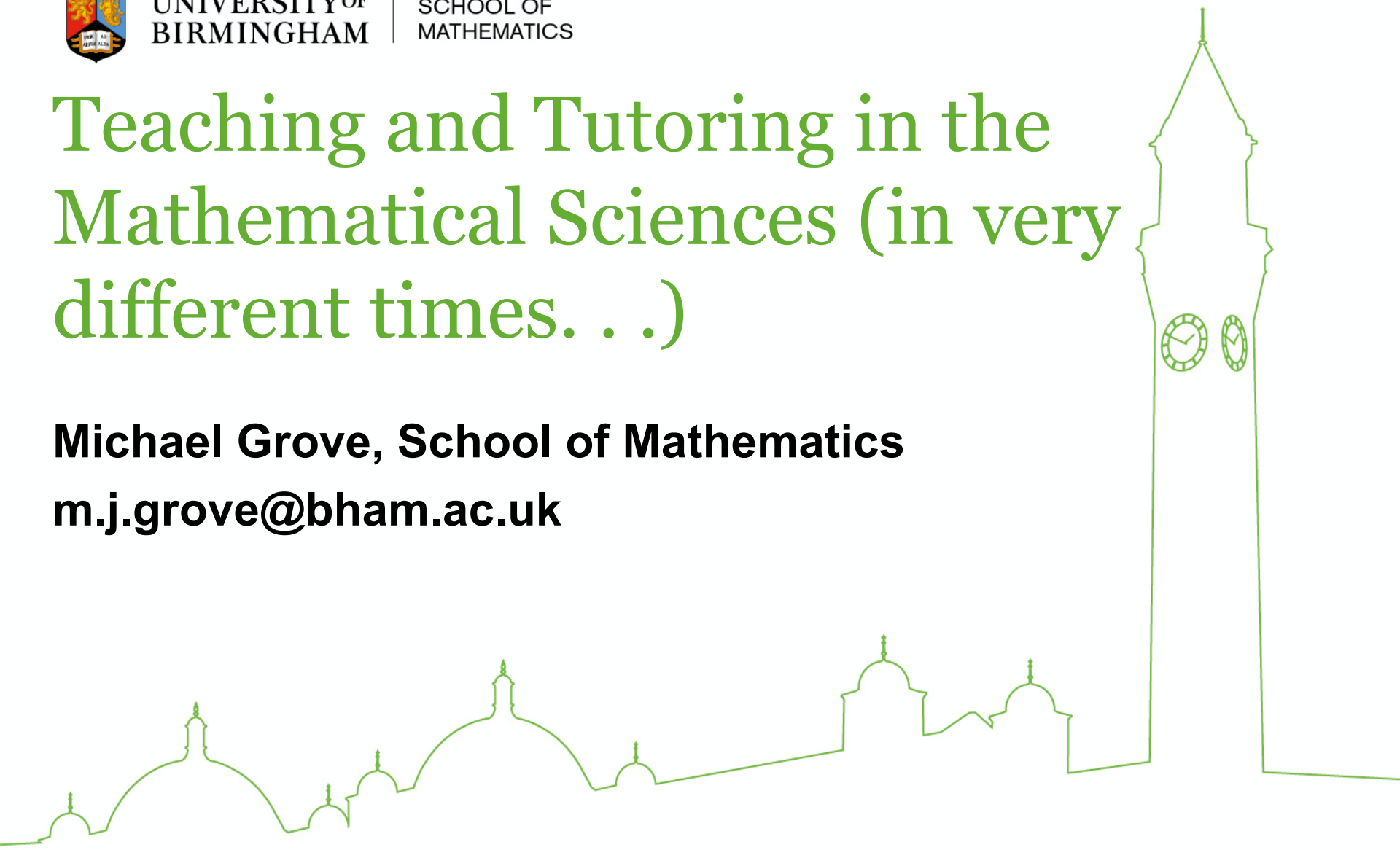
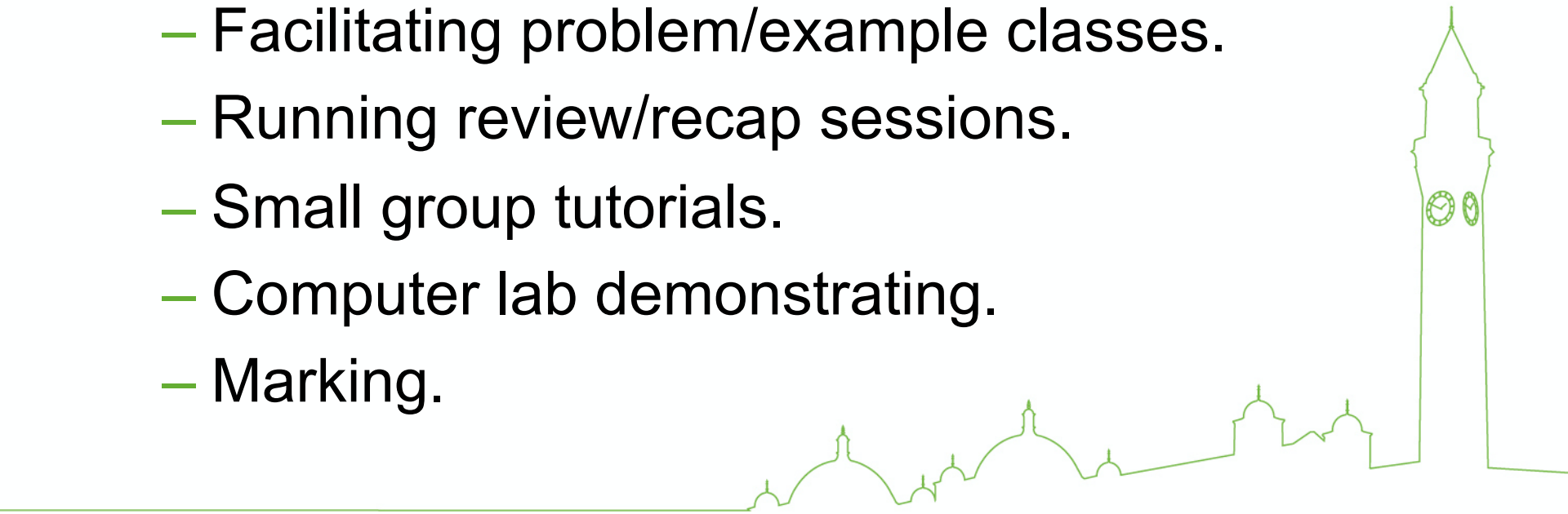


Previously. . .

- Typical duties for a Postgraduate Teaching Assistant (PGTA):
  - Facilitating problem/example classes.
  - Running review/recap sessions.
  - Small group tutorials.
  - Computer lab demonstrating.
  - Marking.



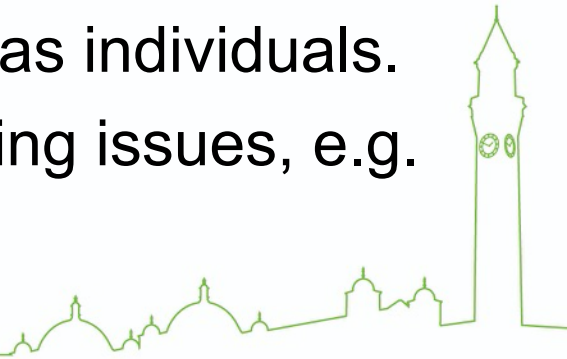
And now. . .?

1. What teaching or tutoring duties are you expecting to undertake this coming academic year?

2. What are the challenges you are expecting to face (or what are your concerns)?

Facilitating online teaching sessions

1. Very different to in-person sessions:
   - Learners can be much more anonymous – many will log-in but few will be visible.
   - You may get more interaction, but not how you expect, e.g. use of chat facility for questions.
   - Encouraging collaboration can be more difficult, but it is possible (break out rooms for problems).
   - More likely to need to be tutor-led, at least at the start.
   - More difficult to get to know students as individuals.
   - Unlikely to have to deal with challenging issues, e.g. problematic student behaviour.



Teaching sessions: In general…

- Prepare early – give yourself time to think.
- Read and review teaching materials given to you.
- Read around and make notes of your own.
  - What are the key points?
  - Consider how to use tasks.
- Get to know the students & what they know.
  - Use your experience as a learner of mathematics.
  - But students are not you.
- Resist the temptation to ‘tell’. Guide students towards a ‘solution’.
- Your sessions should not be mini-lectures.
- ‘Ramp up’ the difficulty.
- Listen, question and then explain.

Some tips

- Spend time familiarising yourself with the technology.
  - Identify what you will do in case of technical problems.
- Prepare early: Have some pre-prepared material to start the session.
  - Don’t rely upon student questions to kick things off. But canvas feedback in advance if possible.
- Set expectations and behaviours.
  - Your institution/department should have a policy.
- Is recording a session necessary?
  - If so, permissions will be needed.
- How will you share the mathematical aspects?
  - Tablet? Visualisers? Pre-prepared
  - Consider two log-ins if you have a tablet device.

Some tips

- Consider building in pauses:
  - Allows students to think about things.
  - Monitor chat
  - For longer sessions, consider a short break.
- Don’t be afraid to try things to generate interaction; can be easier online as more anonymous:
  - Polling of questions.
  - Sharing of whiteboard.
  - Breakout groups to discuss problems
- At the end, think about what worked and what didn’t. Talk to fellow tutors.

Marking student work: some tips

- Mark one question at a time (Horizontal marking).
- Short questions in one go.
- Stick to the scheme.
- Avoid being influenced by poor handwriting.
- Revisit borderline cases, e.g. 39%.
- Follow on marking?
- Benefit of the doubt.

Do not spend hours anguishing over marking.

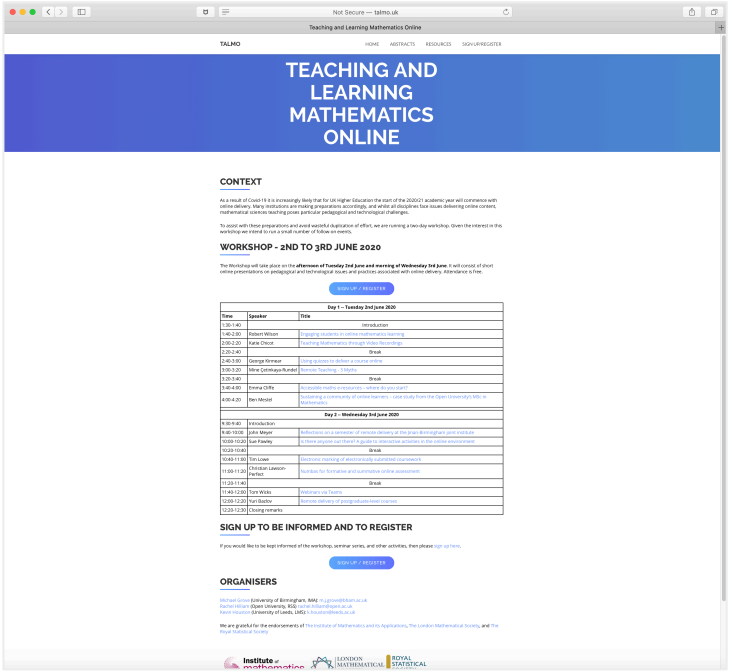
Feedback tips

- Be prompt and concise.
- Mix positive and negative.
- Be specific but dont just ‘tell’.
- Direct feedback to improvements.
- Relate to the criteria.
- Point to worked solutions where needed.
- Give suggestions for further work.

- Online events
- Hosting of ‘How-to’ videos, short guides, case studies
- Recordings of all past events

Teaching And Learning Mathematics Online

http://talmo.uk



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Resources on:

- Guidance on online teaching
- Video software & recording
- Online whiteboards
- Polling/interactivity
- Assessment
- Accessibility
- Making online teaching interactive

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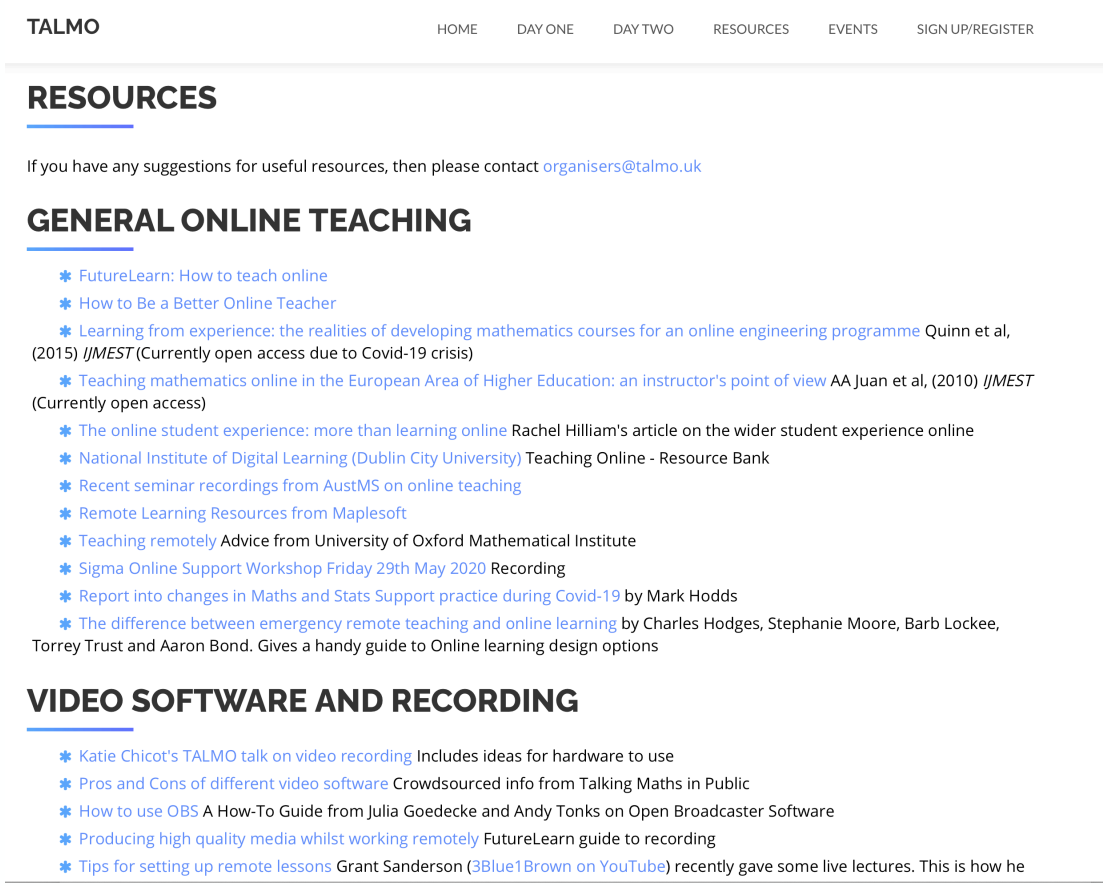

TALMO

HOME DAY ONE DAY TWO RESOURCES EVENTS SIGN UP/REGISTER

RESOURCES

If you have any suggestions for useful resources, then please contact organisers@talmo.uk

GENERAL ONLINE TEACHING

- FutureLearn: How to teach online
- How to Be a Better Online Teacher
- Learning from experience: the realities of developing mathematics courses for an online engineering programme Quinn et al, (2015) *IJMEST* (Currently open access due to Covid-19 crisis)
- Teaching mathematics online in the European Area of Higher Education: an instructor's point of view AA Juan et al, (2010) *IJMEST* (Currently open access)
- The online student experience: more than learning online Rachel Hilliam's article on the wider student experience online
- National Institute of Digital Learning (Dublin City University) Teaching Online - Resource Bank
- Recent seminar recordings from AustMS on online teaching
- Remote Learning Resources from Maplesoft
- Teaching remotely Advice from University of Oxford Mathematical Institute
- Sigma Online Support Workshop Friday 29th May 2020 Recording
- Report into changes in Maths and Stats Support practice during Covid-19 by Mark Hodds
- The difference between emergency remote teaching and online learning by Charles Hodges, Stephanie Moore, Barb Lockee, Torrey Trust and Aaron Bond. Gives a handy guide to Online learning design options

VIDEO SOFTWARE AND RECORDING

- Katie Chicot's TALMO talk on video recording Includes ideas for hardware to use
- Pros and Cons of different video software Crowdsourced info from Talking Maths in Public
- How to use OBS A How-To Guide from Julia Goedecke and Andy Tonks on Open Broadcaster Software
- Producing high quality media whilst working remotely FutureLearn guide to recording
- Tips for setting up remote lessons Grant Sanderson (3Blue1Brown on YouTube) recently gave some live lectures. This is how he

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