Welcome to Martingale Theory with Applications!

Márton Balázs

University of Bristol

5 October, 2020.

Covid rules, briefly

Buildings have been prepared, assessed and approved as *COVID secure*. But to keep safe we'll need your help.

- If you have COVID symptoms, please stay at home and self-isolate. *All of this unit should be possible to follow online. (It's still nicer to be in class for the face-to-face sessions though.)*

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- Please fill the room from the back to the front (*minimise crossings*).

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Sources:

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The unit webpage:

`https://people.maths.bris.ac.uk/~mb13434/mt20z.html`

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The Blackboard page for the unit serves as a backup of all materials on the webpage, and will also have the (non-public) homework solutions. It also keeps the announcements.

How it all will happen

Blended teaching:

Prerecorded videos Appear by the beginning of the week on YouTube (backed up on Blackboard).

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Feel free to email me
: with any questions, comments, issues. We can set up separate online meetings as well.

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- Please feel free to interrupt and ask or comment at any point whether in Zoom or in the classroom.
- Most likely I will not notice if you write in Zoom's chat (*there will just be too many things going on*) so only use it if you cannot comment in words. Please do interrupt if you notice a fellow student's comments in the chat.

Assessments

Bi-weekly homework sets contribute 20% to your final mark. See the webpage for timing.

Exam will give 80% of your mark. Year 3 and Year 4 will differ in about 20% of the problems.

The Maths

- Basics A, some overlaps with *Further Topics in Probability*
- Martingales
- Optional stopping
- Martingale convergence
- Basics B: some further foundations we need next
- Kolmogorov's 0-1 law, Strong Law of Large Numbers
- Doob's submartingale inequality
- Application: Black–Scholes option pricing (simple version)

Questions?