

# B8.2: Continuous Martingales and Stochastic Calculus (2022) Course Structure and Timetable

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The lectures for this course are organized into 9 topics, which should be addressed sequentially. An estimated Timetable for lectures (and problem sheets) is below. If you're following the prerecorded lectures, this is indicative of where we should be up to each week. The problem sheets are set to ensure you have all required material, if you've followed the lectures up to the corresponding week.

I will provide further guidance about exam preparation towards the end of term.

I hope you enjoy B8.2!

- Week 1: Lecture topics 1 – 3.1 (Introduction, Measure theoretic Random Processes, Definition of Brownian Motion)
- Week 2: Lecture topics 3.2 – 3.6 (Construction and properties of Brownian Motion)  
Problem Sheet 1
- Week 3: Lecture topics 4 - 5 (Filtrations, Stopping times and the Strong Markov Property)  
*Intercollegiate Class (Problem Sheet 1)*
- Week 4: Lecture topics 6 (Sub/supermartingales and their convergence)  
Problem Sheet 2
- Week 5: Lecture topics 7.1 – 7.5 (Continuous semimartingales and Quadratic Variation)  
*Intercollegiate Class (Problem Sheet 2)*
- Week 6: Lecture topics 7.6 – 8.8 ( $\mathcal{H}^2$  space)  
Problem Sheet 3
- Week 7: Lecture topics 8 (Stochastic Integration)  
*Intercollegiate Class (Problem Sheet 3)*
- Week 8: Lecture topics 9 (Itô's formula)  
Problem Sheet 4
- Week 1TT: *Intercollegiate Class (Problem Sheet 4)*