

Questions for Lecture 3

While reading *Chapter 4.2–4.3* of [G], ask yourself:

- Why can't we use “usual” integration for Brownian motion but have to define the Itô integral?
- What are the basic steps for the definition of the Itô integral? What do they tell us?
- In which sense of “uniqueness” should the Itô integral be interpreted?
- What are important properties of the Itô integral?
- In which sense is the solution to an SDE unique?
- How can the proof of the existence and uniqueness result be used for simulations? How does one implement this?
- How “explicit” are the solutions to a geometric Brownian motion and an Ornstein–Uhlenbeck process?
- Why does the CIR process require extra care?