Some notes for Week 2:

1. Stochastic process: a variable whose value **changes over time** in an **uncertain way**, then this variable follows a stochastic process. – be aware of the randomness of **any stochastic process.**
2. Markov process: a **stochastic process** where only the current value of a variable is relevant for predicting the future value.
3. A Wiener process – see lecture notes. Be careful with the uncertainty in this process. The uncertainty comes from epsilon!
4. Generalised Wiener process – see lecture notes. It further adds a drift term to the Wiener process, and the variance rate can be any value (not only 1 as in Wiener process).
5. Ito process: the drift rate and variance rates are functions of the underlying variable.
6. The stock price follows the Ito process.
7. The log value of the stock price follows a generalised Wiener process, thus, the stock price follows the lognormal distribution.