Stoch Proc -Assignment Hints

Scott Alexander

Question 1

(a)

(b)

Look at TNC from Ch 2.

(c)

Look at TNC from Ch 2.

(d)

See page 45 from Ch 3.

Question 2

(a)

Simplify using independence property.

(b)

See Def 9 Ch 4.

Question 3

(a)

See previous Lab work for MC pricing.

(a)

See previous Lab work for MC pricing.

Question 4

(a)

Use network diagram to find P^{jump} and then A.

cov $(X_3, X_{30}) = \mathbb{E}[X_3 X_{30}] - \mathbb{E}[X_3]\,\mathbb{E}[X_{30}]$.

For $\mathbb{E}[X_3]$ you need $p(3)$.

For $\mathbb{E}[X_3 X_{30}]$ you need $P(X_3 < x, X_{30} < y)$ -- see Thrm 4 Ch 5.

(d)

See previous lab work.

Use independence property of B_t, N_t.

Question 5

(a)

Check stationarity condition and then determine type of process.

(c)

Check condtion page 31 Ch 8.

Question 6

(a)

Find recursion relationship for X_{t+h} and X_t.

Then apply condition (re – write condtion in terms of B_t).

(c)

Refer Lab work on OU process.

(d)

Use Ito.