Basic stochastic processes: applications to finance (MVE171)

Teacher/Examiner: Simone Calogero (calogero@chalmers.se)

Course Schedule

Day	Time	Topic
Thu 28/11	8-9.45, 10-11.45	Review of the standard binomial model
Wed 4/12	8-9.45, 15.15-17	Binomial model with random risk-free rate. Forwards and Futures
Thu 5/12	8-9.45, 10-11.45	The trinomial model. Review of the Black-Scholes model
Wed 11/12	8-9.45, 15.15-17	Monte Carlo method. The Asian option. Multi-asset options
Thu 12/12	8-9.45, 10-11.45	Bonds valuation and yield curve.
Wed 18/12	8-9.45, 15.15-17	Assistance with the project tasks
Thu 19/12	8-9.45, 10-11.45	Assistance with the project tasks

All lectures take place in the room MVF33.

Literature

- S. Calogero: Projects in financial mathematics.

The lecture notes are available at the course homepage

Rules for the implementation and examination of the projects

1. The projects can be found in the lecture notes and will be outlined in the first three weeks of the course.
2. Each project is worked out in groups of max 3 students.
3. All groups have to work out the project on Asian options. In addition each group has to work out a second project, which will be different for each group. *I will choose randomly the topic of the second project.*
4. The names of the students in each group have to be communicated to me by e-mail **before the end of the third week of the course**. Add all the members of the group as recipients of the e-mail. I will send an e-mail to each group on Monday of the fourth week to assign the second project.

5. Each project contains a Matlab exercise and a number of written tasks, marked with the symbol (*). The solution of the written tasks has to be handed in to me no later than **January 10th**. The solutions can be sent by e-mail (one copy for each group). However in this case you should scan the pages and not take pictures of them.

6. To pass the course each member of the group has to **individually** review to me the Matlab codes showing to have a clear understanding of the projects topic. The presentations will take place in my office **during the exam week in January**.

7. In week 4 of the course I will help the groups to carry out the project tasks. Bring a laptop to the lectures. No assistance will be provided outside these hours.

8. If a student does not show up at the presentation the course will be reported as "not passed". The next opportunity to give the presentation will be during the re-exam week.