

University of Wollongong
School of Mathematics and Applied Statistics

**Information Sheet for
Stochastic Methods in Finance– STAT920**

Autumn Session 2006

Wollongong

Subject Coordinator:

A/Prof. Yan-Xia Lin (Room 15.144)

Email: yanxia@uow.edu.au

Phone: (02) 4221 4336

Consultation: Monday 9:00am-11:00am, Tue. 9.00am to 11:00am

Subject Prerequisites:

Subject to the approval of the Head of School

Topics & Lecturers

STAT920 covers necessary probabilistic concepts and models such as linear stochastic models, nonlinear stochastic models and nonlinear chaotic models used in finance. Topics discussed in this subject also include martingale methods, stochastic processes, optimal stopping, the modeling of uncertainty using a Wiener process, Ito's formula as a tool of stochastic calculus, equivalent martingale measures and the applications of these methods to finance.

Lecturer: Yan-Xia Lin (Rm 15.144)

Phone: (02) 4221 4336

Email: yanxia@uow.edu.au

Consultation: (Details will be discussed during the first lecture.)

Textbook & Reference Books

Text: Lecture notes will be given during lectures

References:

R.-A. Dana and M. Jeanblanc (1998). Financial Markets in Continuous Time, Springer.

J. M. Steele (2000). Stochastic Calculus and Financial Applications, Springer.

E. Zivot and J. Wang (2003). Modeling Financial Time Series with S-Plus, Springer.

Salih N. Neftci (2000). An Introduction to the Mathematics of Financial Derivatives, 2nd Edition, Academic Press, Sydney.

Reference papers will be introduced during lectures.

You are not required to purchase reference books. Several copies of all these books are available in the Library. These readings are recommended only and are not intended to be an exhaustive list. Students are encouraged to use the Library catalogue and databases to locate additional readings with similar titles and contents.

Notices

The subject coordinator may need to contact you concerning STAT920. Messages will be sent to your University email address. *You should check your email account at least once a week.*

Subject Learning Outcomes

A student who successfully completes this subject should be able to obtain some basic knowledge on Wiener Process, martingales, Ito's formula and their applications to finance.

Lectures

There are two lectures each week. Lectures for STAT920 are

Monday 1:30 – 3:30 Room 19.2040

You are expected to attend *all lectures* in STAT920. Experience has shown that poor attendance at lectures leads to poor performance in this subject. The lecture time may be changed subject to students' requirement.

Assessment

Your final mark in STAT920 will be determined as follows*:

Assignments --- 30%

Exam ---- 70%

Total – 100%

Scaling of marks is **not** a standard procedure in this subject.

There will be three assignments.

Note that you are not required to “pass” each individual component to receive a Pass grade in STAT920. However, you would seriously jeopardize your chances of passing this subject if you do not aim to be successful in every component of the assessment.

Calculators

Please note that single-line-display calculators are permitted in examinations for this subject. They must not have alphanumeric keyboards (or capabilities) and they must not be programmable in any way. If you are not sure whether your calculator is acceptable, have it checked well before any exam.

Consultation

If you are having difficulty with STAT920, you are encouraged to seek advice from your lecturers or the subject coordinator (most tutors are casual staff and

therefore are not available for consultation). For administrative matters, you should see the subject coordinator.

If you cannot come at the listed consultation times, contact the

subject coordinator to arrange an appointment at a mutually convenient time.

**If you are having any difficulty with STAT920,
you should seek advice before it is too late.**

**Policies and Services of the University, Faculty and School can be found from
<http://www.math.uow.edu.au/current/generic.html>**