

Risk

TRAINING

STOCHASTIC CALCULUS FOR DERIVATIVES

NEW YORK, 6 & 7 May 2002
LONDON, 20 & 21 May 2002

EXPERT COURSE TUTOR

Professor Steven E. Shreve
Professor of Mathematics
CARNEGIE MELLON
UNIVERSITY

**In past years, this course has sold out
in both London and New York.**

**Make sure you book early, to reserve
your place**

COURSE HIGHLIGHTS:

- Demystify the mathematical terminology and use of Brownian motion
- Apply Ito's formula to multiple processes
- Understand connections between stochastic calculus and PDE
- Benefit from a detailed understanding of Girsanov's theorem
- Get to grips with change of numeraire and foreign exchange models
- Analyse the Heath-Jarrow-Morton model
- Learn about jump-diffusion models

YOUR COURSE TUTOR

Steven Shreve is Professor of Mathematics at Carnegie Mellon University. He has supervised PhD students in finance and teaches in the Carnegie Mellon master's programme in computational finance, now in its seventh year, with degrees offered in Pittsburgh and New York. He received his MSc in electrical engineering and his PhD in mathematics from the University of Illinois in 1977. Steven has also been a faculty member in the Departments of Mathematics and Statistics at the University of California at Berkeley and in the Laboratory of Information and Decisions Systems at the Massachusetts Institute of Technology. Steven is co-author of the books "Brownian Motion and Stochastic Calculus" and "Methods of Mathematical Finance", co-editor of the proceedings "Mathematical Finance, Vol. 65, Institute for Mathematics and its Applications," advisory editor of the journal "Finance and Stochastics" and a member of the governing council of the Bachelier Finance Society. He has published over thirty articles in scientific journals on stochastic control, including numerous articles on the application of these subjects to finance such as the effect of transaction costs on option pricing, the effect of unknown volatility on option prices, pricing and hedging of exotic options, and models of credit risk. In 2001 Steven won Carnegie Mellon University's highest award for excellence in education.

WORKING KNOWLEDGE

Delegates should have a basic preparation in differential and integral calculus and some knowledge of probability.

WHO SHOULD ATTEND

Quantitative researchers, derivatives analysts, quantitative analysts, financial engineers, project managers, risk managers, specialist dealers and traders, fund managers, treasurers and software developers will all find this course valuable. It will also be of interest to students of stochastic calculus and financial mathematics.

DAY ONE

NEW YORK, 6 May 2002

LONDON, 20 May 2002

9:00 Registration and breakfast

9:30 DEMYSTIFYING THE TERMINOLOGY

- Probability spaces and random variables
- Sigma-algebras and filtrations - how information is recorded
- Adapted processes - no insider trading
- Conditional expectations - a best estimate
- Martingales - the trend is flat
- Risk-neutral pricing - a consequence of hedging

11:00 Morning break

11:30 BROWNIAN MOTION

- Independence and normality
- Martingale property
- Quadratic variation - a measure of volatility

12:30 Lunch

1:30 STOCHASTIC INTEGRALS

- Construction - value of a portfolio
- Martingale property
- Quadratic variation

STOCHASTIC CALCULUS

- Ito's formula for one process
 - geometric Brownian motion
 - first derivation of Black-Scholes formula
- Ito's formula for multiple processes
 - cross variation as instantaneous correlation
 - state price density process

3:00 Afternoon break

3:30 MARKOV PROCESSES

- Markov property
- Feynman-Kac formula
 - Black-Scholes option model
 - Vasicek term structure model
 - Cox-Ingersoll-Ross term structure model

5:00 End of day one

PAST DELEGATES' COMMENTS ON THIS COURSE

"I was impressed by the ability of Professor Shreve in making every concept simple and clear. No buzzwords, straight to the point. At the end of the course you walk away with a precious sets of notes!"
Manlio Trovato, Merrill Lynch

"Steven Shreve is a master lecturer. His presentation is clear as can be, with the ideal balance between theory and practicality."
Nels Anderson, Moody's Investors Service

"The teaching was superb, and the notes were adequate. All in all, I learnt a great deal."
Wahid Chaudhry, Deutsche Bank

"Professor Shreve is an excellent teacher and elucidate many of the key concepts extremely well. A very good course."
Past delegate, UBS Warburg

STOCHASTIC CALCULUS DERIVATIVES

DAY TWO

NEW YORK, 7 May 2002

LONDON, 21 May 2002

9:00 Registration and breakfast

9:30

GIRSANOV'S THEOREM

- Construction of risk-neutral measure
- Risk-neutral pricing
- Martingale representation theorem
- Fundamental theorem of asset pricing
 - no arbitrage and existence of a risk-neutral measure
 - hedgeability and uniqueness of the risk-neutral measure

11:00 Morning break

11:30

HEATH-JARROW-MORTON MODEL

- No arbitrage condition
- Implementation
- Relation to affine-yield models

12:30 Lunch

1:30

CHANGE OF NUMERAIRE

- Numeraires and risk-neutral measures
- Foreign exchange models
- Forward measures
 - Libor and swaps
 - Black caplet formula

3:00 Afternoon break

3:30

JUMP PROCESSES

- Poisson and compound Poisson processes
- Stochastic calculus for jump processes
- Changing the measure
- A jump-diffusion model

5:00 Finish

New for 2002

The course programme has been fully revised and updated and now includes a new section on Jump Processes to ensure that delegates learn the latest techniques.

PRE-COURSE READING & PRE-COURSE QUESTIONNAIRE

To maximise the value of the course and in addition to the course documentation, Risk Training will send pre-course reading material enabling delegates to preview the course and prepare questions. In addition, delegates will receive a pre-course questionnaire so that special areas of interest may be highlighted and that Professor Shreve may adapt the level of the course as much as possible.

THE COURSE

This unique course is specially designed to equip quantitative risk managers and specialist traders with a thorough understanding of stochastic calculus in derivatives and interest rate models. With a clear and concise systematic approach, this intensive two-day course will train delegates in the application of continuous time financial mathematics, which underpin advanced finance.

The expert course leader, Professor Steven E. Shreve, has received strong commendations from past delegates for his methodology and style which allow delegates to learn at a comfortable pace and pose questions to clarify difficult areas as and when necessary.

All fundamental concepts from the theory of stochastic calculus will be illustrated by practical worked examples so that as well as understanding highly technical articles, delegates will learn how to manipulate theory and apply their knowledge in their own organisations.

KEY LEARNING POINTS

- A sound knowledge of mathematical terminology
- An in-depth understanding of change of numeraires
- A thorough knowledge of the role of volatility in stochastic calculus
- A rigorous analysis of Brownian motion
- An examination of Heath-Jarrow-Morton model
- An enhanced ability to read finance literature
- Familiarity with forward measures
- Comprehension of Girsanov's theorem and risk-neutral measure
- Insights into stochastic integrals and Ito's formula for multiple processes

Risk Training courses promote a practical learning environment through real life applications and numerous worked examples. The style of the course is informal, practical and highly interactive, with limited numbers to ensure maximum benefit to each participant.

STOCHASTIC CALCULUS FOR DERIVATIVES

Code : A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

NEW YORK, 6 & 7 May 2002
LONDON, 20 & 21 May 2002

T O R E G I S T E R

By mail Conference Administration,
 Risk Waters Group, Haymarket House, 28-29 Haymarket,
 London SW1Y 4RX, UK

By tel +44 (0)20 7484 9898

By fax +44 (0)20 7484 9800

By e-mail conf@riskwaters.com

Book online: www.risktraining.com/stochastic

Please do not cover this box as it contains important marketing information

Visit the **Risk Waters Group** web site for an update on our forthcoming conferences and courses and for information on our magazines and books at www.riskwaters.com

Registration details

Stochastic calculus for derivatives

New York 6 & 7 May 2002

\$2,999

Stochastic calculus for derivatives

London 20 & 21 May 2002

£1,999 + 17.5% VAT = £2,348.83

Your registration fee includes breakfast, lunch and refreshments, pre course reading and your documentation pack. Book online or fax the completed form with your credit card details, or follow up the provisional reservation with a cheque made payable to Risk Waters Group Ltd. In order that we process your registration with maximum efficiency, we request that a copy of this booking form accompanies your payment. Please complete the form below in BLOCK CAPITALS.

EMAIL	TITLE	FIRST NAME	FAMILY NAME
JOB TITLE / POSITION		DEPARTMENT	COMPANY
ADDRESS			
CITY	POST/ZIPCODE	COUNTRY	
TEL DIRECT	TEL MAIN SWITCHBOARD	FAX	
APPROVING MANAGER	TRAINING MANAGER	<input type="checkbox"/> Please check this box if you are interested in in-house training	

Please check the description which best fits your company type

Commercial/Investment bank
 Brokerage
 Building Society/Thrift
 Insurance company

Exchange
 Asset/Investment/Fund management co
 Legal
 Regulator

Accountancy/Audit
 Consultancy/Boutique
 Government/Public Body
 Software/Technology

Energy/Utility
 Non-financial corporation
 Other (please specify)

Payment details Please note your place is not guaranteed until your payment has been received

CRYD118
 CRYP90

I have enclosed a cheque made payable to **Risk Waters Group Ltd.**

Please debit my: AMEX VISA MASTERCARD DINERS CLUB (please supply 'valid from' date _____)

CARD NO: _____ EXPIRY DATE: _____

ACCOUNT ADDRESS IF DIFFERENT FROM ABOVE _____

SIGNATURE _____ DATE: _____

Risk Waters Group VAT No: GB 681 3190 38 For companies in EU member states only: Please write your VAT/TVA/BTW/IVA/ MCMS/MWST/FPA number here _____

Payment is required prior to the event. If you require an invoice please inform us stating whether you need an original or a fax copy. We accept company cheques, credit cards and bank transfers.

Please allow a minimum of seven working days for a bank transfer to reach us and phone or fax us when it has been sent. Please state the event name and delegate name to which it relates.

Venue and accommodation details

London course

Venue to be confirmed
 Please see website for details

New York course

Venue to be confirmed
 Please see website for details

Special Group Discounts:

Group Discounts available. Please contact customer services for further details.

WARNING: Risk is a registered trademark, and the title, contents and style of this brochure are the copyright of Risk Waters Group. We will act on any infringement of our rights anywhere in the world. © Risk Waters Group 1998.

CANCELLATION

A refund (less 10% administration fee) will be made if notice of cancellation is received in writing three weeks before the event. We regret that no refunds can be given after this period. A substitute delegate is always welcome at no extra charge.

DISCLAIMER

The programme may change due to unforeseen circumstances, and Risk Waters Group reserves the right to alter the venue and/or speakers. Risk Waters Group accepts no responsibility for any loss or damage to property belonging to, nor for any personal injury incurred by, attendees at our conferences, whether within the conference venue or otherwise.

INCORRECT MAILING, DATA PROTECTION

If any of the details on the mailing label are incorrect, please return the brochure to the database administrator at Risk Waters Group so that we can update our records and ensure future mailings are correct.

Please check this box and return this page if you do not want to receive details of special offers which may be of relevance to you.