Quant Finance Interviews

Financial Engineering Interview Prep

COURSE BY WWW.QCFINANCE.IN

HTTP://QCFINANCE.IN/FINANCIAL-ENGINEERING-INTERVIEW-PREP/

SESSION BY SHIVGAN JOSHI

Interview Formats

FORMATS ARE NEARLY SAME

INTERVIEW PASSING IS A TECHNICAL PROCESS – SCIENTIFIC DEALING WITH IT IS VERY IMPORTANT

MAKING STRATEGY IS ALL THAT MATTERS THE MOST

YOU CANNOT GO WITHOUT PREP

Class No	Topic (50% taken by subject experts)	Assignment	Feedback & Evaluation
1	Course structure – Making changes to the plan	Places you target and syllabus	
2	Soft Quantitative Aspects in Finance and News	Quant CFA L1 L2 FRM L1 L2	
3	Excel VBA MATLAB R SAS SQL Revision	Respective books	
4	Calculus and C++	Different Level of Exercise	
5	Puzzles and Qualitative Aspects	List of answers to modify	

First Three lines of the interview

- What do you know about Our Company?
- What can you do for Our Company?
- Why do you want to work for Our Company?
- Example Goldman - Henry Paulson – Treasury secretary

Interview Quant Hedge Fund

Three rounds

1 hours per round

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- Three Parts:

1. Excel Questions – Rank adjustment, MC vs Normal Distributions; implied volatility; creating checks using data validation
2. Pricing – Fixed Income, from Bloomberg screenshot, convertible bonds
3. Probability Questions - person retiring (were from actuarial exam); age of people;

Insurance Inv Analyst Interview

45 min Telephonic round

- Probability questions
- Factor Analysis
- Mathematical language
- Yield curve
- Policy of central bank
- Dice questions
- R-square on flipping X and Y
- Non stationary series – CFA L2 – if they are behaving in same way we can use the time series – using the returns not the number

* study this

Three Dimensions of Inteview

- Programming: Asked me about encapsulation and polymorphism – OOPS – C++ recepies?
- Probability: If I toss a fair coin 400 times and biased coin 80/100 heads chances, what is the probability that I got a biased coin I get 220 heads?
- Finance Questions – BS Derivatives Greeks Exotic options
- Fixed income is 80% of their investment so interest rate become most imp

Based on your profile

Earlier roles are most important

- Problems in regression
- Examples of Monte Carlo
- VBA Codes
- C++
- MATLAB Interest rate models – Derivative toolboxes

Book Reviews – 5 books for Quant Fin interviews

LEVEL 0-3

NONE OF THEM HAS C++

SOME HAS MORE QUIZ OTHER HAS CALCULUS

Vault Guide to Advanced Finance and Quantitative Interviews

Book Review

- Level 0
- Easy book

Paul & Dominic's Guide

Getting a Job in Quantitative Finance FAQ

- Level 0
- Small book 70 pages
- Small paragraphs for each topic
- No maths but only words to get you acquainted with things

Starting Your Career as a Wall Street Quant: A Practical,

No-BS Guide to Getting a Job in Quantitative Finance - Brett Jiu

- Level 0
- Not much of Calculus or C++
- 100% Qualitative book

Heard on the Wall Street

Timothy Falcon Crack

Book review

Shivgan Joshi

- Level 1 book
- Five main sections - Quantitative/Logical Questions, Derivatives Questions, Financial Economics Questions, Statistics Questions and Non-Quantitative Questions.
- C++ is important – dedicated class for non programmer to answer some questions on C++.This book doesn't have C++ questions.
- Yes / No / Let me try?
- Non quant market question – where the markets are
- Purely Quant and Logical Questions – Taken ay Arpit
- Derivatives – no maths – pure finance
- My comments – overall an easy book – not upto the level of Quant or C++ - A round one book

Frequently Asked Questions in Quantitative Finance

Paul Wilmott

433 pages

Book Review

- Level 2 book
- One of the longer books
- Stochastic Calculus, Geometric Brownian Motion, Black-Scholes as well as Volatility Modelling and the CAPM
- Question and answer format - 50 questions
- Answers are over simplified

FAQ

- What is Brownian Motion and what are its uses in finance?
- Ten Different Ways to Derive Black–Scholes
- What is Ito’s lemma?
- What is Maximum Likelihood Estimation?
- What is cointegration?
- What is closed-form solutions?
- What is a jump-diffusion model and how does it affect option values?
- What is the finite-difference method?
- What are copulas?
- What is the asymptotic analysis?

A Practical Guide To Quant Fin Interviews

Book by Xinfeng Zhou

Review

- Level 3 book
- Starts with brain teasers
- Many pages of basic maths and series summation
- Lots of calculus – engineering calculus revision
- Is there some way to get back to this using a course; may be a certificate of diploma in maths ?
- Lots of stochastic calculus again and lots of probability
- A good book to revise maths in just 50 pages ; although no C++

Quant Job Interview Questions And Answers -

Mark S. Joshi, Nick Denson, Andrew Downes

- Level 3 book
- Contains C++ as well
- Explanations are not that good and questions are few
- Good book to do at the end
- Lots of mathematical terminology
- Having idea of derivation of BS helps

Level	Book Name	Page Numbers / Chapters	C++/Stochastic Calculus/ Quiz & Puzzles
0	Three books		Not much talked about – lots of Quiz
2	Heard on the Wall Street - Timothy Falcon Crack	400 / Finance Chapters	More into Finance
3	Frequently Asked Questions in Quantitative Finance - Paul Wilmott	440	Everything but no C++
3	A Practical Guide To Quant Fin Interviews - Xinfeng Zhou	300-400	Everything
3	Quant Job Interview Questions And Answers –Mark Joshi	329 /	More on maths programming

Reading List

Stochastic Differential Equations: An Introduction with Applications, B. Oksendal (ISBN: 3540047581)

- Financial Calculus: An Introduction to Derivative Pricing, Martin W. Baxter, Andrew J. O. Rennie

(ISBN 0521552893)

- Efficient Methods for Valuing Interest Rate Derivatives (Springer Finance S.), Anton Pelsser (ISBN 1852333049)
- Pricing and Hedging of Derivative Securities, Lars Tyge Nielsen (ISBN 0198776195)
- A First Course in Probability (International Edition), Sheldon Ross (ISBN 0131218026) - Don’t be offended by the

title !!! – packed with good ‘applied’ problems to solve of the type asked in interviews

- Beginning C++: The Complete Language, Ivor Horton (ISBN: 1590592271)
- Effective C++: 50 Specific Ways to Improve Your Programs and Design (2nd Edition), Scott Meyers

(ISBN 0201924889)

The 25 Best-Selling Books For Quants

1- A Primer for the Mathematics of Financial Engineering, 2nd Ed - Dan Stefanica
2- Solutions, Primer For The Mathematics Of Financial Engineering, 2nd Ed - Dan Stefanica
3- Quant Job Interview Questions And Answers– Mark Joshi
4- Fifty Challenging Problems in Probability with Solutions – Frederick Mosteller
5- The Complete Guide to Capital Markets for Quantitative Professionals
6- My Life as a Quant: Reflections on Physics and Finance – Emanuel Derman
7- Heard on The Street: Quantitative Questions from Wall Street Job Interviews - Timothy Crack
8- Frequently Asked Questions in Quantitative Finance - Paul Wilmott
9- A Practical Guide To Quantitative Finance Interviews – Xinfeng Zhou
10- Liar's Poker - Michael Lewis
11- Cracking the Coding Interview: 150 Programming Questions and Solutions - Gayle Laakmann McDowell
12- How I Became a Quant: Insights from 25 of Wall Street's Elite - Richard R. Lindsey
13- Problem Solving with C++, 8th Edition - Walter Savitch
14- Options, Futures and Other Derivatives (8th Edition) - John Hull
15- Stochastic Calculus for Finance I: The Binomial Asset Pricing Model - Steven Shreve
16- Paul Wilmott on Quantitative Finance 3 Volume Set (2nd Edition) - Paul Wilmott
17- Stochastic Calculus for Finance II: Continuous-Time Models - Steven Shreve
18- Principles of Financial Engineering, 2nd Edition - Salih Neftci
19- C++ Design Patterns and Derivatives Pricing - Mark Joshi
20- C++ Primer Plus - Stephen Prata
21- The Big Short: Inside the Doomsday Machine - Michael Lewis
22- When Genius Failed: The Rise and Fall of Long-Term Capital Management - Roger Lowenstein
23- Starting Your Career as a Wall Street Quant - Brett Jiu
24- Reminiscences of a Stock Operator - Edwin Lefevre
25- The Quants: How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It - Scott Patterson

Paul Wilmott on Quantitative Finance

- 1400 pages on quant finance

Roles

Quant Questions

- Maths
- Probability distribution – Coin , Dice
- Brain teasers

Programming Topics

- C++ and data structures, finance, brainteasers, and stochastic calculus

References

- http://www.wikijob.co.uk/wiki/goldman-sachs-interview-questions
- http://www.assessmentday.co.uk/WJ/index.html?wikijob-link-type=a-link
- http://www.geeksforgeeks.org/goldman-sachs-interview-set-2-on-campus-for-analyst/
- http://www.careercup.com/page?pid=goldman-sachs-interview-questions
- http://goldmansachsinterviewquestions.blogspot.com/
- **103 questions:**
- http://interviewquestionsandanswers.biz/interview-questions-list-and-answers/
- **Data structures and algorithms:**
- https://www.quantnet.com/threads/goldman-interview.3496/
- http://www.entrepreneur.com/article/230931
- http://www.askivy.net/articles/investment-banking/interview-preparation/how-do-i-make-it-to-goldman-sachs
- **Quant focused:** www.wilmott.com/messageview.cfm?catid=16&threadid=12806
- http://www.quora.com/Goldman-Sachs/What-is-it-like-to-be-a-quantitative-analyst-at-Goldman-Sachs
- http://www.glassdoor.com/Interview/Goldman-Sachs-Quantitative-Analyst-Interview-Questions-EI_IE2800.0,13_KO14,34.htm
- http://www.vault.com/blog/interviewing/5-interview-questions-investment-banking-interns-need-to-nail/
- http://www.reliableplant.com/Read/28069/Questions-asked-job-interview
- http://news.efinancialcareers.com/ru-en/93451/an-illuminating-qa-with-an-ex-goldman-sachs-quant-from-russia-who-warns-think-before-you-go-into-banking/