

Exam MFE

Study Program Guide

Fall 2011 exams



*Get the most
from your
study
program...*

... see page 7

This document contains important information

Please read this document carefully before starting your study.

Contents

1.	About the BPP Study Program	4
2.	Additional help from BPP	6
3.	Getting the most from your BPP study materials	7
4.	Study Skills	9
5.	Calculator advice, examination tables and exam tips	11
6.	Your study session planner	13
7.	Syllabus	31

Glossary

Exam MLC - the life contingencies segment of Exam M which is tested by a 3 hour multiple choice examination.

Exam MFE - the financial economics segment of Exam M which is tested by a 3 hour multiple choice examination.

Note: This Study Program Guide relates to Exam MFE only.

Welcome

We're confident that this BPP Exam MFE study program will have a very positive impact on the way you study for the actuarial exams. We believe that students should spend their time focusing on learning and preparing for the exam, not juggling their time between textbooks, separate solution manuals and then additional study manuals to re-explain those textbooks and solution manuals!

No other provider of actuarial education offers such a wide range of coordinated support, including:

- introductory online lectures
- comprehensive course notes
- exam-style question & answer banks
- email tutor support.

We've designed the course to cover all the learning objectives in an order that's right for you. Our course notes provide clear explanations of the syllabus, and over 200 worked examples and practice questions, all with full solutions.

Our introductory online lectures are fully coordinated with the course notes. They will ensure that you can get a good introduction to each topic prior to reading the course notes.

Our question and answer bank contains 300 exam-style questions to give you the practice necessary to maximize your opportunity for success in the actual examination.

For BPP, providing a study program means providing a commitment to support students all the way through to the exam. Our full-time tutors will answer any questions you may have by email so that you always have the support you need. We also offer seminars to give you the very best chance of success in the exam.

Passing the actuarial exams is difficult enough. We understand that you're competing against some very bright people and that it's always hard to find time for studying between working and spending time with friends and family. BPP's study programs organize your study effectively and provide the very best support. They will help you maximize your chances of success in the exam and to make good progress towards qualification.

As you have more contact with BPP, you'll find us to be a very friendly and proactive company. We are committed to providing high quality study support. We respond quickly to students' requests and will do all we can to meet your specific needs. We look forward to helping you.

Good luck with your studying.



David Wilmot
Director of Education

** Note to CAS students: We know that this subject is called "Exam 3F" by the CAS, but we'll use the description "Exam MFE" throughout this Study Program Guide. We think this makes the text easier to read than using the rather awkward "Exam MFE/Exam 3F".

1 About the BPP Exam MFE study program

BPP's Exam MFE study program has everything you need to know, containing 4 coordinated sources of help.

Online lectures

Our introductory online lectures introduce all of the main topics.

The lectures are coordinated with the BPP course notes to give you the most comprehensive study support available.

You can watch them as many times as you like – as an overview before you study the course notes, or to help you review the material you've just covered.

Either way, together with the course notes they will help you to understand even the most difficult areas of the syllabus.


Example

A study of retired teachers shows that:

- 8% suffer from migraines
- 12% have high blood pressure
- 93% of migraine sufferers have high blood pressure.

What is the probability that an individual with high blood pressure will suffer from migraines?

$$\Pr(\text{Migraines} | \text{High BP}) = \frac{\Pr(\text{Migraines})\Pr(\text{High BP} | \text{Migraines})}{\Pr(\text{High BP})}$$

$$= \frac{(0.08)(0.93)}{0.12} = 0.62$$



Course notes

These comprehensive notes are divided into 10 chapters to help you structure your progress through the session leading to the exam.


Chapter	Title
0	Introduction to options
1	Put-call parity and other relationships
2	The one-step binomial model
3	Multi-step binomial trees
4	The Black-Scholes formula
5	Hedging
6	Exotic options
7	Brownian motion and Itô's lemma
8	Interest rate models
9	Monte Carlo methods

**Actuarial Models:
Financial Economics**

Course notes for SOA Exam MFE and CAS Exam 3F



- Meets all learning objectives of the Society of Actuaries Exam MFE and Society of Actuaries Exam 3F
- Over 145 worked examples and practice questions
- Clear explanations and guidance from experienced instructors
- Free online solutions manual



These course notes include clear explanations of all the main theory plus over 200 worked examples and practice questions (all with full explanatory solutions).

The course notes fully meet the learning outcomes of the Exam MFE syllabus.

Question & Answer Bank

The Question & Answer Bank contains 316 exam-style questions, 93 of which are based on past exam questions / SOA sample questions and the rest consist of original questions written by our team of instructors. We provide a detailed line-by-line solution to every question, to help you learn the techniques required to pass the exam.

The questions are coordinated with the course notes through our study session planner in Section 6 of this Study Program Guide. We list the questions that you can attempt after having completed each chapter of the reading.

Email tutor support

Our email support service is designed to help you with the most difficult areas of the course. We'll answer your questions thoroughly and quickly so that you can get on with your studying with no worries. Please refer to the FAQ's section of our website for further guidance regarding email support.

Getting help with your studying by email

Before submitting questions we do expect students to work through the material carefully and to check first the Course MFE student mailbag at www.bpptraining.com, as we put answers to **frequently asked questions** about the course material on our website.

If you remain stuck, you can email technical questions about the course material to our team of tutors at:

examMFEsupport@bpptraining.com

Please help us to help you by stating your name and your question clearly, with page references if appropriate.

If you have any non-technical questions about BPP's study programs, you should send an email to:

info@bpptraining.com



2 Additional help from BPP

Practice exams

BPP's practice exams look and feel just like the real thing – they're designed to give you a realistic test of your exam preparation. Each practice exam contains brand new exam-style questions and is supplied with full explanatory solutions. The practice exams are another helpful source of exam-style questions, especially for students who have worked through all the other questions.

Flashcards

BPP offers user-friendly flashcards to supplement the study program. They'll help you review and remember the most important formulas, lists, concepts and other pertinent information. Memorizing the important formulas and knowing how to use them are the most effective exam preparation approach for many students, and our flashcards are very helpful in this regard.

Find out more at www.bpptraining.com

For more information on BPP's full range of products and services, visit our website at www.bpptraining.com.

Our website includes many free samples to download, including course notes, online lectures, and online tests.

You'll also find special discounts available only through our online store, where you can order 24 hours a day, 7 days a week.



3 Getting the most from your study materials

Order of study

To help you plan your study, we've divided the course into 10 study sessions. The detail of each session appears later in this Study Program Guide. However, each of your study sessions should include four main activities:

1. Introduction - Watch an online lecture

The online lectures are designed to introduce the main conceptual ideas and to help you towards understanding the most difficult areas. These introductory online lectures are not a replacement for reading the comprehensive course notes, but they will help you to study more efficiently by identifying the important topics and explaining how the parts of the course are related.

2. Key learning - Read the related sections of the course notes

The course notes include detailed explanations of the topics covered by the Learning Outcomes, along with over 200 worked examples and practice questions. As you work through the course notes, you should try to study actively and think about what you're reading. (Active study is discussed in the Study Skills section of this Study Program Guide.)

3. Evaluate learning - Test your understanding

At the end of each chapter there are a number of practice questions. These questions are designed to test your understanding of the syllabus. Most of them are shorter and more straightforward than genuine exam-style questions, but every question is designed to test a concept, technique or formula that you will need to know in order to pass the exam.

4. Practice answering exam-level questions - Question & Answer Bank

After learning the important concepts and formulas, the most important way to prepare for the exam is to practice exam-style questions. The other tasks in each study session are designed to help you reach the standard required to attempt these longer and more difficult questions. The Question & Answer Bank contains over 300 questions, all with full explanatory solutions plus hints and tips.

It's a fact that people are more likely to remember something if they review it periodically. So, do look over the chapters you have studied so far from time to time. You may also find it useful to review the online lectures and online tests (where purchased).

The secret to success in preparing for actuarial exams is to practice, practice, and then practice some more!

6 Your study session planner

Overall study plan

You should set a study plan that is *realistic for you*, based on when you start studying for the exam, your prior knowledge, and other commitments.

Here is a *sample* study plan based on a start date in July 2011. There is a lot of material to get through so *starting on an earlier date would be prudent*, particularly if you are also studying for Exam MLC! This plan can easily be modified as needed if you want to start on a different date or study at a different pace, but always keep the exam date in mind since it arrives quickly!

Weeks #	Weeks beginning	Activity
1-2	July 4	Study sessions 0 and 1
3-4	July 18	Study sessions 2 and 3
5-6	August 1	Study session 4 and 5
7	August 15	Review study sessions 0-5 (Work in Q&A Bank)
8-9	August 22	Study session 6 and 7
10-11	September 5	Study session 8
12	September 19	Study session 9
13	September 26	Contingency for holidays, unexpected events, catch-up <i>etc</i>
14	October 3	Review study sessions 6-9 (Work in Q&A Bank)
15	October 10	Review period Focus on practicing exam-style questions from the Q&A Bank under time pressure and memorizing unintuitive formulas that cannot be written down from conceptual understanding. Attempt a BPP practice exam. Identify your weaknesses and work to eliminate them.
16	October 17	
17	October 24	
18	October 31	
19	November 7	Exam MFE examination (<i>November 10-16</i>)

Planning your study sessions

The following pages are designed to help you plan each of your study sessions in order to make steady progress through the course.

Take care! It is important to get through all of the material, reviewing it several times, and to work through a lot of exam-style questions. The potential trap is for you to get bogged down in one area with the result that you don't then have time for a thorough review of all of the material.

Study record

Use this table to record your progress. Enter the date you complete each task and study session.

	Study Session									
	0	1	2	3	4	5	6	7	8	9
<p>Online lectures</p> <p>Watch BPP's online lecture(s) for each study session. The lectures provide an overview of the relevant topics.</p> <p>Watch Online Lecture 1 before reading Chapter 0 and Chapter 1.</p> <p>Watch both Online Lecture 2 and Online Lecture 3 before reading Chapters 2 and 3.</p> <p>Thereafter watch the Online Lecture for each chapter in sequence.</p>										
<p>Reading</p> <p>Read the relevant section of the course notes (the session pages that follow tell you what to read).</p> <p>Work through end-of-chapter questions to test your understanding.</p>										
<p>Question & answer bank</p> <p>Attempt questions from the question & answer bank for the chapters you have just read.</p> <p>The question & answer bank contains brand new exam-style questions.</p>										

Study session 0

This is an introductory study session that covers the prior knowledge needed for this course.

Required reading: Chapter 0 of the BPP course notes



Hints, tips and advice

Most of the exam questions on an Exam MFE examination paper will assume knowledge of the concepts covered in this study session.

Important topics (*ie* most likely to be examined) in this area are:

1. terminology for stocks, forwards, options and other financial instruments
2. payoff functions for call options, put options and forwards
3. calculating forward prices and prepaid forward prices
4. option prices, intrinsic value and time value
5. the concept of holding long and short positions in an asset

In the course notes, we've placed a box around the important formulas to help you identify them for your review. (During the exam, you won't have time to derive many formulas, so by the exam it is important to be able to write them down from solid conceptual understanding or to have memorized the most difficult and unintuitive ones!)

Calculator techniques/shortcuts/exam hints:

1. Be careful not to mix up call and put options:
 - a *call* option is an option to *buy* the underlying asset. Its payoff function at time T is $\max[S_T - K, 0]$.
 - a *put* option is an option to *sell* the underlying asset. Its payoff function at time T is $\max[K - S_T, 0]$.
2. Note that whether an option is in-the-money, at-the-money or out-of-the-money depends only on the option's strike price and the current price of the underlying asset. It does not depend on whether an investor has a long or a short position in the option.