

Exam P / 1

Study Program Guide

Summer / Fall 2010 exams



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

... see page 6

This document contains important information

Please read this document carefully before starting your study.

Welcome

We're confident that this BPP Exam P** 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:

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

We've designed the course to cover the learning objectives in an order that's right for you. Our course notes provide clear explanations of the syllabus, and include 142 worked examples and 228 practice questions, all with full solutions.

Our introductory online lectures and online multiple choice tests are fully coordinated with the course notes, so whatever you're studying you'll be able to listen to a lecture that's relevant to you, or try some short multiple choice questions to test your knowledge and understanding.

Our Question and Answer bank contains over 500 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.

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 provide the very best support to 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 1" by the CAS, but we'll use the description "Exam P" throughout this study guide. We think this makes the text easier to read than using the rather awkward "Exam P/Exam 1".

1 About the BPP Exam P study program

We're confident that this BPP Exam P 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, study manuals to re-explain those textbooks and additional textbooks with solutions.

BPP's Exam P study program contains everything you need to know, with 5 coordinated sources of help. No other actuarial education provider offers such a wide range of support.

Online lectures

Our introductory online lectures give you a quick start by introducing 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 BPP's 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?

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

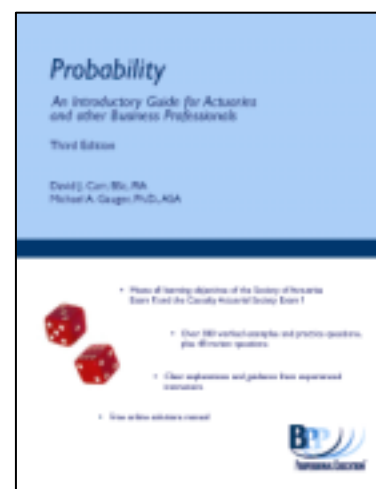
$$= \frac{(0.08)(0.93)}{0.12} = 0.62$$

BPP
Business & Professional

Course notes

The course notes are divided into 9 chapters to help you structure your progress through the session leading to the exam.

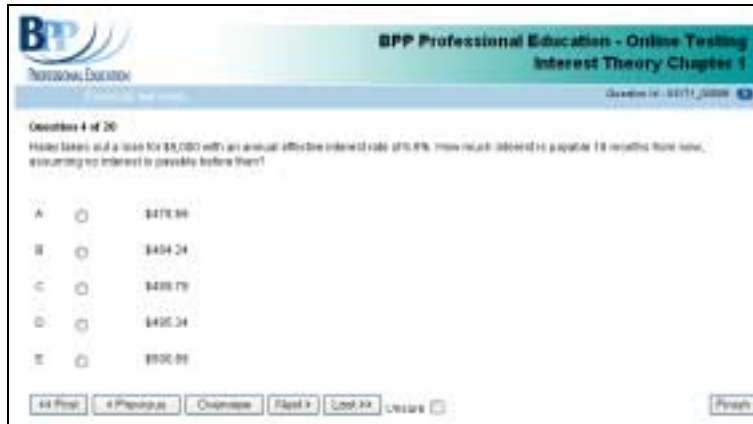
Chapter	Title
1	Introduction to Probability Theory
2	Counting Techniques
3	Conditional Probability & Bayes' Theorem
4	Introduction to Random Variables
5	Common Discrete Distributions
6	Common Continuous Distributions
7	The Normal Distribution
8	Multivariate Distributions
9	Transformations of Random Variables



Our course notes include clear explanations of the main theory, and 370 worked examples and practice questions (all with full solutions).

Online tests

After having read the course notes you can quickly check your knowledge and understanding using our online multiple choice tests, which include a wide variety of conceptual, computational, and knowledge-based questions. Their online nature is not conducive to long computational problems and so the online test questions are a little more straightforward than you might expect to see on the actual exam. However, they are a great way to work up to the more difficult questions that appear in the Question and Answer Bank.



BPP's online tests contain original short questions with full solutions. They're coordinated with the BPP course notes and are designed to test all the key concepts that you'll need to know and work you towards answering exam-level questions such as those in our Question and Answer Banks.

Question & Answer Bank

The Exam P Question & Answer Bank contains over 500 exam-style questions, including a mix of past exam questions (taken from recent SOA/CAS exams) and 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.

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.

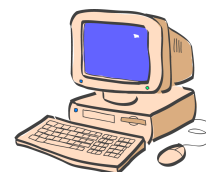
Getting help with your studying by email

Before submitting questions we do expect students to work through the material carefully and to check first 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: examPsupport@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. Our practice exams are now available online to help you prepare for the computer-based testing process. Each practice exam contains brand new exam-style questions and is supplied with full solutions.

Flashcards

BPP offers user-friendly flashcards to supplement the study program. They'll help you review and remember the most important formulas, lists and other pertinent information.

Further help from BPP

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.



3 *Getting the most from your study materials*

Study activities

To help you plan your study, we've divided the course into 9 study sessions. The detail of each session appears later in this Study 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. The online lectures are not a replacement for reading the detailed 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 section of the course notes

The course notes include detailed explanations of the topics covered by the Learning Outcomes, along with 370 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 Guide.)

3. Evaluate learning - Test your understanding

At the end of each chapter of the course notes there are a number of practice questions. In addition, the online tests include a wide variety of conceptual, computational, and knowledge-based questions. All of these are designed to test your understanding of the syllabus. Some of the questions are shorter and simpler 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

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 a large mixture of relevant past exam and brand new 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 find it useful to review the online lectures and online tests (where purchased) as well.

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

4 Study skills

Overall study plan

A good study plan is one that is:

- developed right at the start of your studies
- realistic
- builds in time for relaxation
- allows for known future busy work periods that will restrict your study time
- allows some time for contingencies.

Once you have set your plan, be determined to stick to it.

Manage your study to allow plenty of time for the concepts you meet in this course to become ingrained in your mind. The most successful students will have completed the course in good time, and left 6-8 weeks for question practice and review. By finishing the course as quickly as possible, you will have a much clearer view of the big picture. It will also allow you to structure your review so that you can concentrate on the important and difficult areas of the course. How often do you think “*I’m just getting the hang of this, I wish the exam was two weeks later*”?

Study sessions

DO only those activities that will increase your chance of passing, *eg this might not include repeated re-reading of the course notes!*

DO have a specific purpose for each study session, *eg “Read pages 117-126 and attempt questions 35-42 from the Question & Answer Bank”.*

DON’T include non-specific activities, including those using just a time-based target *eg “Three hours studying the material in Chapter 2”.*

DON’T spend too much time reviewing material that you already understand. *You will only improve your chances of passing the exam by getting on top of the material that you currently find difficult.*

DO study somewhere quiet and free from distractions, *eg a library or a desk at home dedicated to study.*

DO study at the time of day (or night!) when you operate at your peak.

DO take short breaks during your study to remain focused. *It’s definitely time for a short break if you find that your brain is tired and that your concentration has started to drift from the information in front of you.*

Active study

Whether you are learning new material or answering questions, you should try to study as actively as possible. This will help you to remain focused on the task, and to ensure that you learn from the process. Here are some techniques that will help you to study actively.

- **Don't believe everything you read!** Good students tend to question everything that they read. They will ask "why, when, how?" when confronted with a new concept, and they will apply their own judgment.
- As you read the course notes, **think of possible questions that the examiners could ask.** This will help you to understand the examiners' point of view and should mean that there are fewer nasty surprises in the exam room. Try to think of possible variations to existing questions too.
- **Annotate your notes** with your own ideas and questions. This will make your study more active and will help when you come to review the material. Do not simply copy out the notes without thinking about the issues.
- Attempt the end-of-chapter questions as you work through the course. Write down your answer before you check against the solution. Attempt other questions on a similar basis, *ie* write down your answer before looking at the solution provided. **Attempt questions under exam conditions** so as to force you to think and act in a way that is similar to how you will behave in the exam.
- **Sit a practice exam** a few weeks before the real exam to identify your weaknesses and work to improve them. You could use a past exam paper or one of the new practice exams written by BPP.

5 *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 of probability, and other commitments.

Here are two sample study plans working towards alternative exam dates in 2010 from which you might develop your own plan.

Week #	Week beginning	Week beginning	Activity
1	April 12	June 7	Study session 1
2	April 19	June 14	Study session 2
3	April 26	June 21	Study session 3
4	May 3	June 28	Study session 4
5	May 10	July 5	Enjoy a well-deserved week off
6	May 17	July 12	Study session 5
7	May 24	July 19	Study session 6
8	May 31	July 26	Review study sessions 1-6
9	June 7	August 2	Study session 7
10	June 14	August 9	Study session 8
11	June 21	August 16	Study session 9
12	June 28	August 23	Four-week review period Try the extra review questions at the end of the course notes. Focus on practicing exam-style questions under time pressure and memorizing key formulas. Attempt a BPP practice exam. Identify your weaknesses and work to eliminate them.
13	July 5	August 30	
14	July 12	September 6	
15	July 19	September 13	
16	July 26	September 20	Exam P examination weeks

Planning your study sessions

The following pages are designed to help you plan your study sessions and make steady progress through the course.






Study session 1



This study session covers the following Exam P Learning Outcomes:

1. **General probability**
 - Set functions including set notation and basic elements of probability
 - Mutually exclusive events
 - Addition and multiplication rules
 - Independence of events

Study session 1 includes the following tasks:

	Check when completed
 <p>Read Risk and Insurance</p> <p>Read the Risk and Insurance study note and download the tables – see the last page of this Study Program Guide for details.</p>	<input type="checkbox"/>
 <p>Online lectures</p> <p>Watch BPP's online lectures for this study session. The lectures provide an overview of the course notes.</p>	<input type="checkbox"/>
 <p>Course notes</p> <p>Read Chapter 1 of BPP's course notes. Work through the end-of-chapter questions to test your understanding.</p>	<input type="checkbox"/>
 <p>Online multiple choice tests</p> <p>Attempt BPP's multiple choice tests for this study session. The tests focus on the key concepts you'll need to pass the exam through a series of short, multiple choice questions.</p>	<input type="checkbox"/>
 <p>Question & Answer Bank</p> <p>Attempt the Chapter 1 questions from the Question & Answer Bank. The Question & Answer Bank contains exam-style questions, including a mixture of past exam and brand new questions.</p>	<input type="checkbox"/>

Target completion date: _____	Actual completion date: _____
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6 Syllabus

The Syllabus is an important part of your study. You should review this Syllabus at the start and when you have completed your exam preparations to make sure that you understand what you are required to know for the exam. The relevant learning outcomes are listed at the start of each study session.

LEARNING OUTCOMES

Candidates should be able to use and apply the following concepts in a risk management context:

1. General Probability

- *Set functions including set notation and basic elements of probability*
- *Mutually exclusive events*
- *Addition and multiplication rules*
- *Independence of events*
- *Combinatorial probability*
- *Conditional probability*
- *Bayes' Theorem / Law of total probability*

2. Univariate probability distributions (including binomial, negative binomial, geometric, hypergeometric, Poisson, uniform, exponential, gamma, and normal).

- *Probability functions and probability density functions*
- *Cumulative distribution functions*
- *Mode, median, percentiles, and moments*
- *Variance and measures of dispersion*
- *Moment generating functions*
- *Transformations*

3. Multivariate probability distributions (including the bivariate normal)

- *Joint probability functions and joint probability density functions*
- *Joint cumulative distribution functions*
- *Central Limit Theorem*
- *Conditional and marginal probability distributions*
- *Moments for joint, conditional, and marginal probability distributions*
- *Joint moment generating functions*
- *Variance and measures of dispersion for conditional and marginal probability distributions*
- *Covariance and correlation coefficients*
- *Transformations and order statistics*
- *Probabilities and moments for linear combinations of independent random variables*

Candidates are also expected to be familiar with the concepts introduced in “Risk and Insurance”, by Judy Anderson and Robert Brown, published by the Society of Actuaries (16 pages). This can be downloaded free from <http://www.soa.org/files/pdf/P-21-05.pdf>.

The Tables for the exam will be found on: <http://www.soa.org/files/pdf/P-05-05tables.pdf>