

How To Study For (And Pass!) Actuary Exams

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1 Introduction

We've all heard the saying "how do you get to Carnegie Hall? Practice, Practice, Practice!" A somewhat similar saying applies to becoming an actuary: "how do you become an actuary? Exams, Exams, Exams!" (an internship also helps, though. Please contact Professor Reinhold for more on this.) In this short PDF, I want to discuss tips, resources, and strategies for passing actuarial exams, and in particular exams P (Probability) and FM (Financial mathematics). See [8] for the exams registration website.

I'll end this introduction with some information that most of you already know (though if you don't, then you do now): AMAT 362 (Probability for Statistics) basically provides full preparation for exam P, and AMAT 301 (Theory of Interest) provides partial preparation for exam FM (covering about 75% or more of exam FM.)¹

2 Format and Study Tips

While AMAT 301 and AMAT 362 provide preparation for exam FM and P (respectively), these courses differ from the actuarial exams in two important ways. First, your average exam FM and P problem is probably on par with the harder AMAT 301 and AMAT 362 exam problems. Second (and most importantly), you have MUCH less time to complete exam FM and P than you had to complete exams in AMAT 301 or AMAT 362. Namely, both exams are 3 hours long and exam P involves 30 multiple

¹As for some information that most probably don't know, our program also provides preparation for two more exams, namely AMAT 403 (Life Contingencies Part I) provides partial preparation for exam LTAM (Long Term Actuarial Mathematics), which combined with AMAT 404 (Life Contingencies Part II), when it's offered, provides full preparation for exam LTAM. Lastly, BFINN 300 (Business Finance) and AECO 466 (Financial Economics) provides partial preparation for exam IFM (Investment and Financial Markets.)

choice problems, whereas exam FM involves 35 multiple problems (and obviously both are closed book/no notes allowed. Calculators are allowed though, more on this later.) While the passing score for each exam slightly changes year to year, typically it hovers around answering 70% of the problems correctly (and typically half of all exam P/FM takers at any given time fail nation wide).

So great, but how do you study for these exams so you can pass? Problems, Problems, Problems! The key to passing both is to do lots of problems similar to those on the exams, and once you can do these problems correctly in a timely manner, taking mock exams UNDER EXAM CONDITIONS (see above) and continuing to do so until you can get a 70% (or better!) on these mock exams. The types of problems and general patterns among the problems (on both exams) are very consistent, so doing many problems builds up the needed intuition and confidence to quickly solve exam problems. Also, keeping your mind sharp and on point for 3 hours straight is hard (not to mention the difficulty of time management over 3 hours) so taking mock exams under exam conditions is crucial for this! Plus, mock exams are similar to the actual exams (duh!) so if you can consistently pass mock exams, then you'll have the confidence that you can do it again for real!

The bottom line is this: you don't want to walk into an actuary exam wondering what the problems are going to be like, wondering if you'll have time to finish the exam, wondering if you can go 3 hours without going to the bathroom, etc. You want to go into exams KNOWING that you can pass (or at least come close to passing) because you have already done so consistently on mock exams!

3 Study Materials

The above information is rather useless if you don't have a plentiful source of problems and mock exams to draw from! One time tested source of these are written study guides. These "study guides" are largely written in a "Schaum's Outline" manner, providing a brief but comprehensive discussion of relevant material, many worked out problems, and tons of practice problems and mock exams (all geared towards one and only one purpose, preparing you for passing actuary exams!)

Generally speaking, two publishers write actuarial study guides: ASM (short for Actuarial Study Manuals) and ACETEX (I have no clue what this is short for or what this means.) The general consensus is that ACETEX's exam P study manual (by S. Broverman, see [1]) and ASM's exam FM study manual (by W. Shaban and H. Cherry, see [4]) are the two best options. Note that both manuals include an online database of exam problems and mock exams beyond what is in the printed text, though in my experience doing all the manual problems and mock exams (again, done under exam

conditions!) is more than enough preparation ²

Some final points about study guides: the content of the exams sometimes changes slightly over the years so it is worth it to buy the newest edition. Also, both offer free digital trials to see if these manuals are suitable for you. What do I mean by that? Some people prefer to learn by watching lectures and videos rather than just reading manuals.

For such people, there are generally two options: TIA (The Infinite Actuary, see [10]) and CA (Coaching Actuaries, see [5].) These are more expensive options than purchasing a study manual but provide detailed video lectures on the relevant materials and solved problems (plus, in both, instructors will answer your questions in online forums and both offer mock online exams). I have heard good things about both and there is debate regarding the best option for either exam (though I have heard nothing but excellent things about CA's collection of problems and mock exams, and have heard of people just purchasing access to this collection alone). Both offer free trials, so take a look at the videos and see which you like!

4 Calculators

An often overlooked aspect of passing actuary exams is calculator usage. Calculators are allowed on both actuary exams, and passing is probably rather difficult without calculator usage. Only a few calculators are allowed to be used when taking the actuary exams (see [6] for precise details.) Two cheap and very effective options for calculators are Texas Instruments TI-30XS and BA II-Plus.

The BA II-Plus is an excellent (and cheap, costing about \$20) financial calculator that allows you to do financial calculations quickly (such as typical annuity, bond, cashflow, and nominal/effective interest rate conversion calculations) and thus saves you valuable time on exam FM. The TI-30XS calculator on the other hand, is basically the same as the more expensive TI graphing/programmable scientific calculators, but without the graphing and programming features. The advantage of this calculator over the BAI-Plus is that it is multiview, meaning that your calculations are displayed and you can scroll up and down to view multiple calculations, which makes doing basic calculations easier in comparison to the BA II-Plus (also, the price is about the same, costing around \$20). There are generally two reasonable options for calculator usage on exam P and FM: use TI-30XS for exam P and the BA II-Plus for exam FM, or if you find basic calculations too awkward on the BA II-Plus, use TI-30XS for exam P and

²I used ACETEX's study manual to do very well on exam P, and felt it alone was excellent exam preparation. I briefly used ASM's study guide to study for exam FM, but lost motivation once I landed this job at the University at Albany, SUNY.

use both calculators for exam FM (using the BA II-Plus for basic financial calculations and the TI-30XS for other basic calculations.)

Whichever option you choose, please get very comfortable with calculator usage well before you take either exam! In particular, both calculators have memory keys which allow you to record numbers easily, and knowing how to use these memory keys will save you valuable time. Note that you will learn in AMAT 301 how to use the BA-II Plus to do basic financial calculations quickly and how to utilize the calculator's memory keys.

5 Further Resources

Have questions about the actuarial exams or the actuarial profession? Want to meet other people online that are also studying for exams or are somewhere else in their careers? Fortunately, there are plenty of resources to learn about exam taking, learn about the actuarial profession, and to meet current and future actuaries.

The largest and most extensive resource for actuarial information and for meeting current and future actuaries is by far the online forum Actuarial Outpost (see [3].) Thousands of actuarial students and practicing actuaries (some of whom are even hiring managers) frequently post and answer questions here. If you can't find an answer to your question anywhere else, then I'd recommend searching here (or if you can't find it here, post it, and someone will probably answer it!)

There are also at least three excellent individuals that run three separate youtube channels that contain extremely valuable videos on a wide range of actuarial exam and professional topics. These are "EtchedActuary," "ActualElle," and "MJ the Actuary" (see [7, 2, 9] respectively.) While I'm sure other such excellent youtube channels on the actuarial profession exist, these are the three most extensive and popular.

6 Conclusion

Well, there you have it. Passing the actuarial exams P and FM sounds simple, doesn't it? Just do lots of problems, get comfortable with your calculator, and do well on mock exams under exam conditions! Please do not confuse "simple" for "easy" though. Show these exams the respect that they deserve, and after taking AMAT 301 and AMAT 362 (respectively), start studying for exam FM and P (respectively) about two or three months in advance of when you plan to take the exam, and do mock exams for a few weeks before the exam.

Note that you can reschedule 30 days or more before your exam date for free (and there is a \$70 fee for rescheduling 2-29 days before) so don't hesitate to reschedule if you feel like you need more time (exam FM/P both cost \$250, which is a lot compared

to the rescheduling fee.) These exams CAN be passed, and with adequate and honest preparation, passed on the first try. Good luck on your journey towards becoming an actuary, and may the force (of interest) be with you!

References

- [1] ACETEX Exam P Study Manual Website.
- [2] “Actuarial Elle’s” Youtube Channel.
- [3] Actuarial Outpost Forum.
- [4] ASM Exam FM Study Manual Website.
- [5] Coaching Actuaries.
- [6] List of Acceptable Calculators.
- [7] “Etched Actuary’s” Youtube Channel.
- [8] Registration website for the exams.
- [9] “MJ the Actuary’s” Youtube Channel.
- [10] The Infinite Actuary.