



SINGAPORE ACTUARIAL SOCIETY STUDENT FORUM: THE FSA ROUTE



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The Best and Worst Jobs in the US for 2010

The Best

1. **Actuary**
2. Software Engineer
3. Computer Systems Analyst
4. Biologist
5. Historian
6. Mathematician
7. Paralegal Assistant
8. Statistician
9. Accountant
10. Dentist

The Worst

200. Roustabout
199. Lumberjack
198. Ironworker
197. Dairy Farmer
196. Welder
195. Garbage Collector
194. Taxi Driver
193. Construction Worker
192. Meter Reader
191. Mail Carrier

Rated on:

- + Income;
- + Outlook;
- + Stress;
- + Environment ;
- + Physical Demands;
- + Job Security



Source: "2010 Jobs Rated Almanac," &
U.S. Bureau of Labor Statistics and the Census Bureau,

SoA Actuarial Designations...

Designation	Definition
Associate (ASA)	An Associate of the Society of Actuaries has demonstrated knowledge of the <u>fundamental concepts and techniques for modeling and managing risk</u> . The Associate has also learned the basic methods of applying those concepts and techniques to common problems involving uncertain future events, especially those with financial implications. The Associate has also completed a professionalism course covering the professional code of conduct and the importance of adherence to recognized standards of practice. Associates who have been members of the SOA for five or more years may also vote in Society of Actuaries elections.
Chartered Enterprise Risk Analyst (CERA)	A Chartered Enterprise Risk Analyst (CERA) of the Society of Actuaries is an Associate member who has demonstrated knowledge in the <u>identification, measurements and management of risk</u> within risk-bearing enterprises. The CERA has also completed a professionalism course covering the professional code of conduct and the importance of adherence to recognized standards of practice.
Fellow (FSA)	Has demonstrated a knowledge of the business environments within which financial decisions concerning pensions, life insurance, health insurance, and investments are made including the application of mathematical concepts and other techniques to the various areas of actuarial practice. The Fellow has further demonstrated an in-depth knowledge of the application of appropriate techniques to a specific area of actuarial practice.

Top 10 Asian Markets for SoA

Country	FSA's	FSA's by Mutual Recognition	ASAs	ASA's by Other Than Exam	Total	CERA's	CFA's (ca)
1. Hong Kong	325	7	180	4	516	24	4,500
2. China	213	2	163	2	380	19	
3. Taiwan	84	0	149	2	235	12	
4. Singapore	50	0 	52	6	108	7	2,500
5. Malaysia	34	0	30	1	65	2	
6. Japan	29	0	16	2	47	2	
7. Pakistan	14	0	14	1	29	1	
8. Australia	13	5	13	40	71	5	
9. South Korea	13	0	25	1	39	2	
10. Philippines	10	0	13	0	23	1	
TOTAL	785	14	655	59	1513	75	

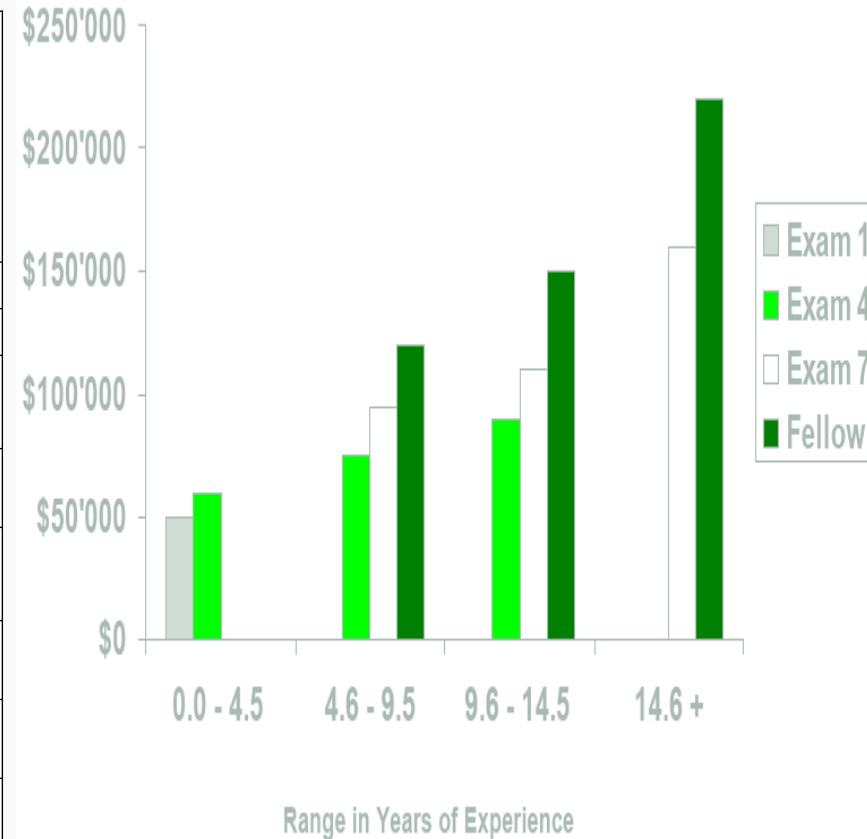
FAQs by Location (Indicative Only)

Australia & New Zealand	1,300	UK & Ireland	7,000
Hong Kong	400	Western Europe (rest)	8,200
Singapore	150	Eastern Europe, ME	600
Japan	1,500	Africa (all)	700
India	200	North America	18,000
China & Rest of Asia	450	Mexico & South America	1500
	4,000		36,000



DW Dimpson Actuarial Survey

Life & Health	0-0.5 yrs	0.5-2.5 yrs	2.5-4.5 yrs	4.5-6.5 yrs	6.5-9.5 yrs	9.5-14.5 yrs	14.5-19.5 yrs	19.5+ yrs
September 2008	(excl. sign-on)							
1 course	45-62	49-64	54-68					
2 courses	47-64	53-68	58-75	61-80				
3 courses	50-66	56-73	61-80	66-87				
4 courses	53-68	60-81	66-86	70-94	73-101			
5 courses		63-86	70-93	78-103	79-114			
ASA		72-95	78-107	88-117	92-130	96-141	108-228	112-242+
7 courses				92-124	98-134			
8 courses				95-131	100-144			
FSA			95-142	101-152	108-164	125-214	142-317	149-341

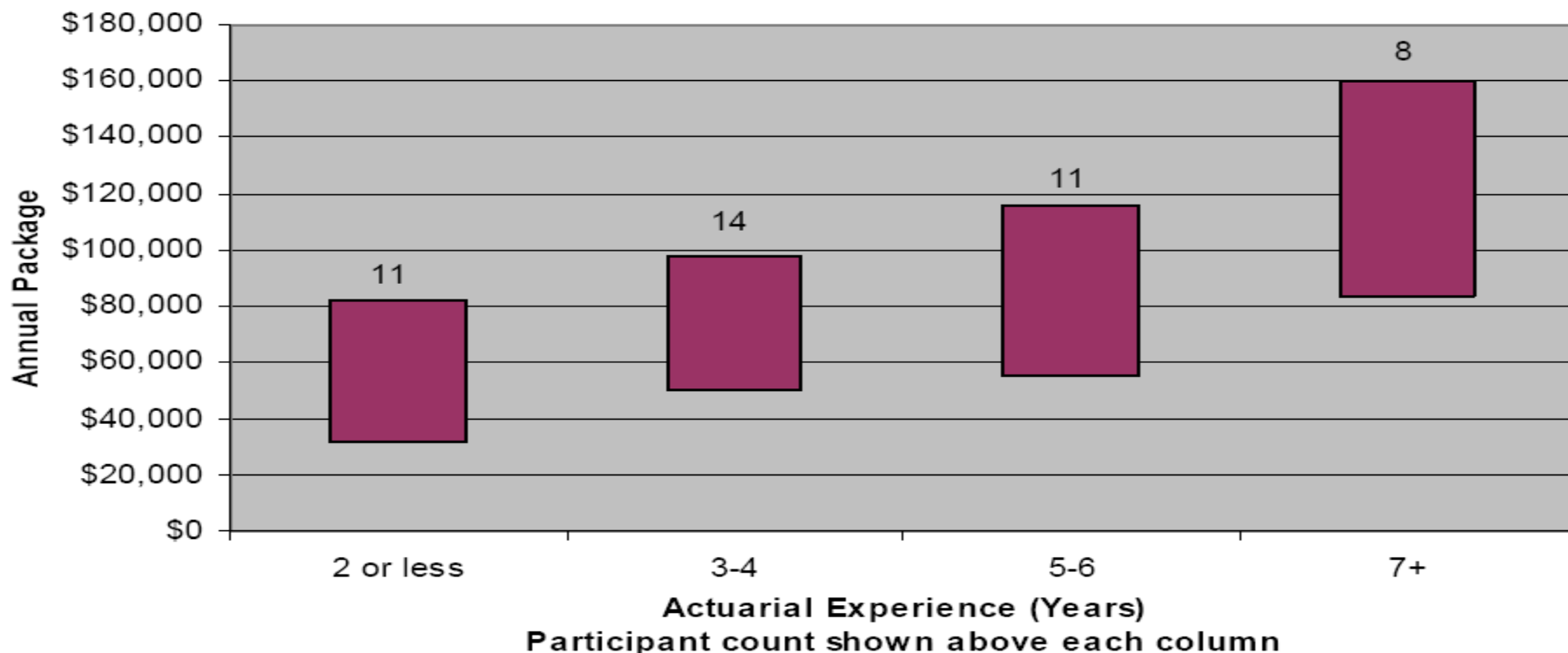


Note: Compensation may vary significantly according to years of experience, geographic region and responsibilities.
Source: D.W. Simpson & Company, Inc, 2004 Salary Survey

US Dollars

SAS Salary Survey – Students/Associates – Annual Package

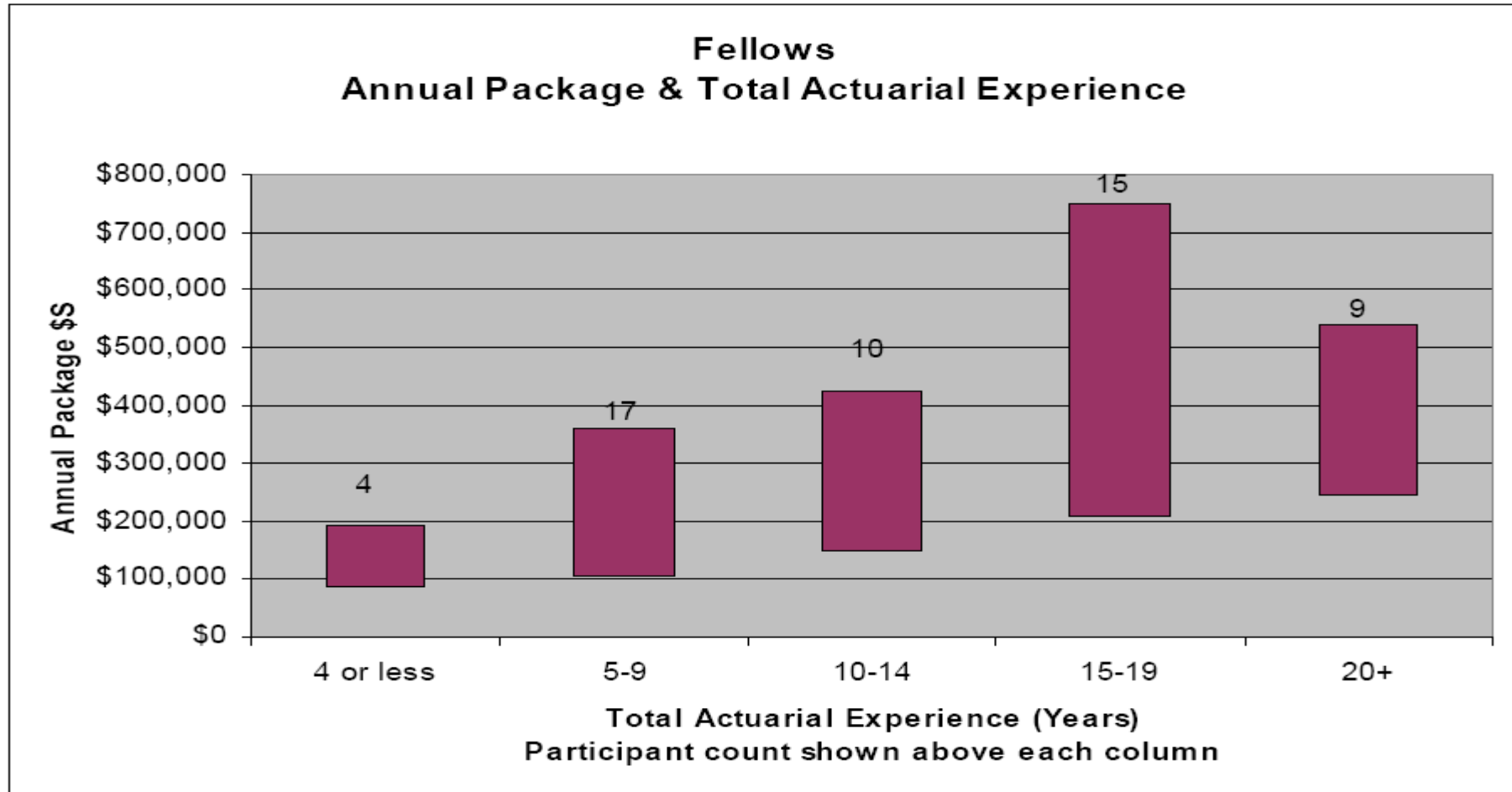
**Actuarial Students & Associates
Annual Package**



Years	2 or less	3-4	5-6	7+
Average	\$50,738	\$69,328	\$78,902	\$121,675
Median	\$47,079	\$69,328	\$73,224	\$120,363

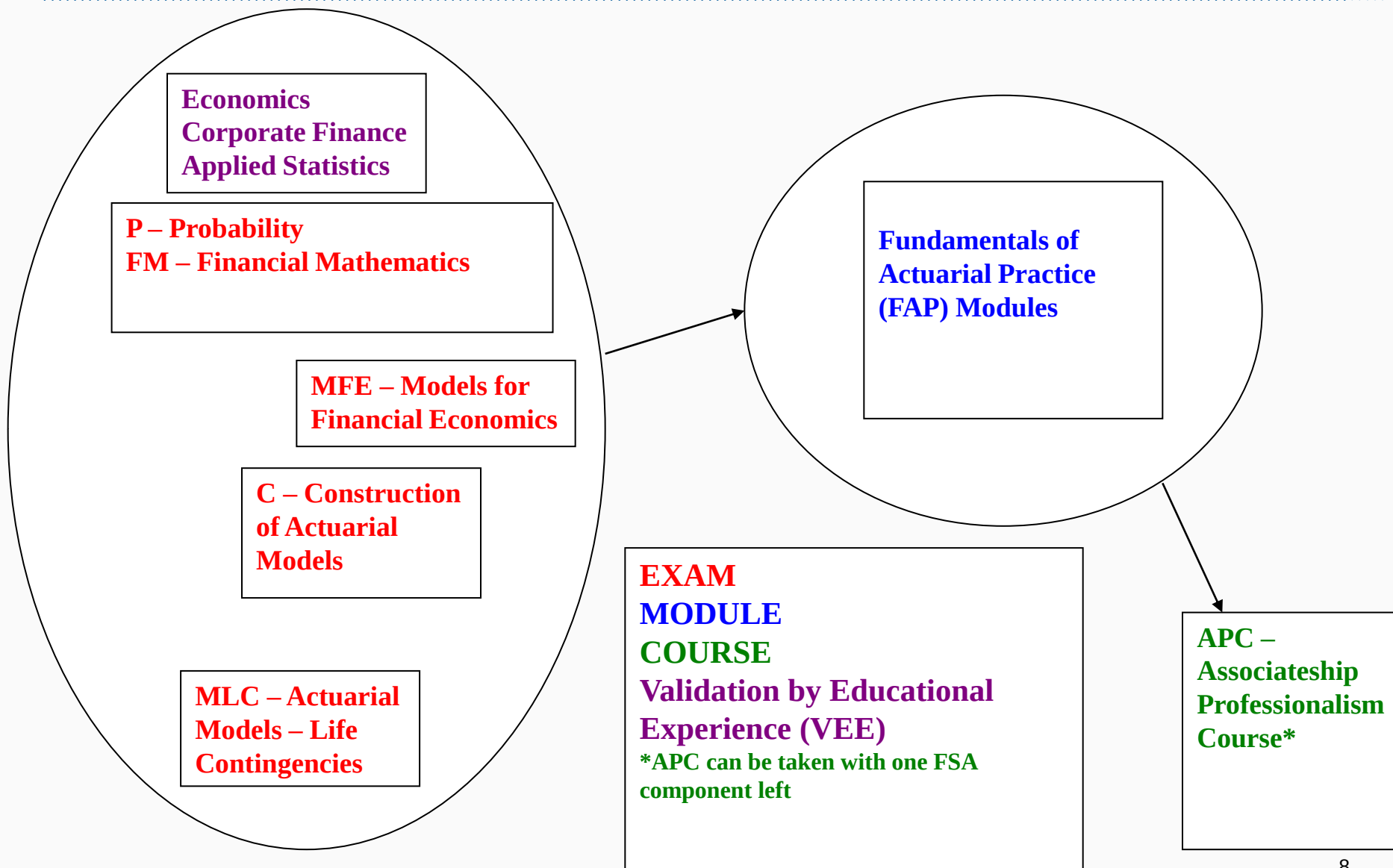
Total Annual Package defined as Base Salary plus Pension plus Guaranteed and Discretionary Bonus

SAS Salary Survey – Fellows – Annual Package



Years	4 or less	5-9	10-14	15-19	20+
Average	\$119,558	\$173,497	\$256,460	\$338,569	\$398,971
Median	\$99,696	\$156,000	\$192,582	\$288,000	\$400,000

ASA Curriculum



FSA Levels Exams/Modules

	Finance/ERM	Investment	Individual Life & Annuities	Retirement Benefits	Group & Health
Spring Exams	Advanced Finance/ERM	Advanced Portfolio Management	Company Sponsor Perspective (CSP)	Company Sponsor Perspective (CSP)	Company Sponsor Perspective (CSP)
Fall Exams	Financial Economic Theory & Engineering		Design & Pricing (DP)	Design & Pricing (DP)	Design & Pricing (DP)
FSA Modules	Financial Economics				Health Systems Overview
	Financial Reporting/Operational Risk*	Investment Strategy	Regulation & Taxation	Social Insurance	Pricing, Reserving & Forecasting
Capstone Experience	Decision Making and Communication (DMAC) Module				
	Fellowship Admissions Course				

The Evolution of the Actuarial Profession...

The Evolution of the Actuary	Emergence	Description	Time to Emerge
Actuary of the 1st kind	17th century	life insurance actuaries using deterministic methods	250
Actuary of the 2nd kind	20th century	casualty actuaries using probabilistic methods	
Actuary of the 3rd kind	1980's	investment actauries applying financial economics (Bühlmann)	70
Actuary of the 4th kind	current	actuaries working in ERM (Embrechts)	25

Source: Stephen P. D'Archy, CAS Presidential Address, 2005

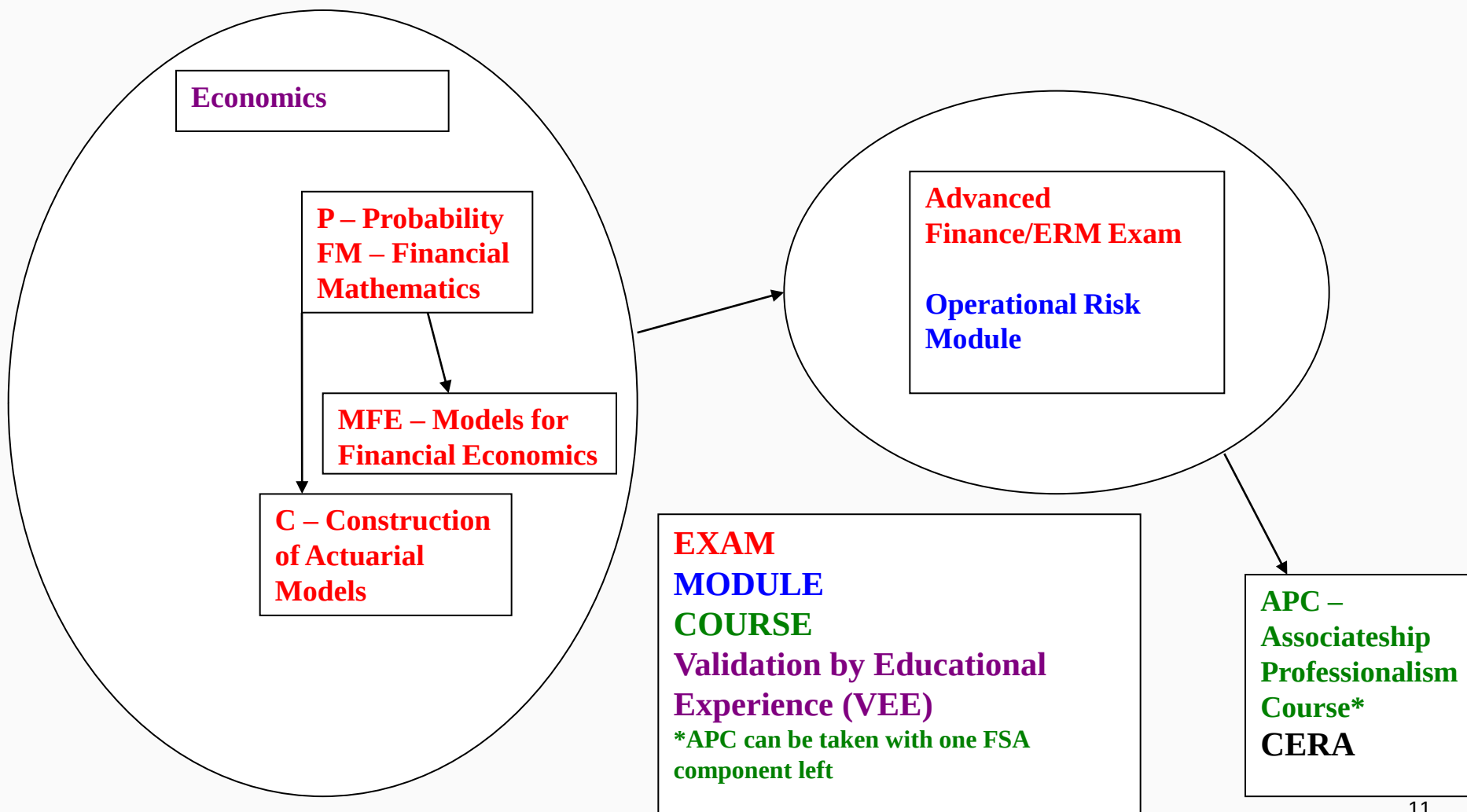


SoA tagline: “Risk is Opportunity”
(www.imageoftheactuary.org)



CERA Curriculum – a Subset of the FSA

- approximately **3-4 years** to obtain the CERA credential
- includes **actuarial science**, **ERM principles** and **professionalism**:



Exam Difficulty

- Among the longest & most difficult professional credentialing examinations the world over
- Mastery of material
- High standards for passing
- Numerous requirements for success:
 - + strong work ethic
 - + good business sense
 - + good writing skills
 - + a little luck
- All this while working full-time.

"...because of my interest in math, I planned to major in mathematics. The only profession I knew of that used mathematics was being an insurance actuary, so that was my intended career. The actuarial profession is a highly specialized profession, which has an association that conducts a series of examinations that a budding actuary must pass to become a fellow and to become established in the profession. As an undergraduate, I took some of those exams. I passed a couple and failed a couple – the only exams I can remember ever failing."

Milton Friedman, Nobel Laureate Economics, University of Chicago





Study Skills – Hours & Basics

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- Various rules – but one that worked for me:
 - 1 hour / minute of exam
 - e.g. SoA Course 8 = $2 \times 3 \text{ hours} = 6 \text{ hours}$
 - = 360 minutes = 360 hours
- Must be quality / active hours
- Plan & start Early – over 6 months = 15 hours / week
- Biggest crimes are:
 - not putting in hours / being fully prepared
 - not writing due to work pressures.
- Where – find a place where you can concentrate without distraction or interruption for at least 45 minutes – e.g. library.
- What – break down material (usually 1000's pages) into manageable sections.
- How – active
 - + understand the concepts
 - + separate the "what" from the "how"
 - + summarise
 - + review
 - + synthesize

How Questions Are Set...

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☐ **Examination Committee** for each paper

☐ Examiners have access to the **latest readings** to base questions on

☐ Different **types** of questions:

- topic specific,
- integrative, and
- case study questions



☐ Detailed **marking schedules** produced – from assigned readings

☐ Questions **reviewed** in detail for ambiguity & accuracy

☐ Marks should be a guide to the **time allocated** to answering question

☐ Aim is to have a good coverage of the **syllabus**

Exam Technique

- Exam fitness – practice
- Budget time - calculating time available for each question e.g. 180 Minutes / 180 Marks = 1 minute per mark
- Order – does not matter too much - you have to answer them all anyway...
- Obvious – read & answer the question asked!!
- Mathematical answers – use quickest method
- Essay answers - use extra paper to brainstorm – generate sparky ideas – plan & structure
- MAKE LIFE EASY FOR THE MARKERS!!



Exam Techniques – “Structured Solutions”

OPEN FORUM

EXHIBIT 3

The reaction from the 45 state regulators may be very different. As the company has just raised the rates of a similar product though with longer in-force, the regulators may question why this new product is ~~more~~ less expensive. Identical scale but the profit margin is higher. The anticipated loss rate 50% may still be too low. There may now be the minimum loss rate of 65% in some states as the Commissioners would see that such level was that to be achieved. The rate level in the commission scale would be questioned by the regulator so that is a return in the expense but this may mean a higher loss ratio should be justified. This new product may replace the old product in the new business. In fact, as a result, the expense of the old product may be higher. This may then mean higher in rates for the old product. The

EXHIBIT 2

There has been both state and federal attempts at cleaning up Medicare Supplement products.

NAIC Model Act requires:

1. Maximum benefit standards apply
 2. On purchase of coverage, on the policy, should be clearly spelled out
 3. A Buyer's Guide to Medicare Supplement Policies will have to be distributed.
 4. Split out all non-NAIC items
- To comply with the above company would have to make sure benefit on policy are at least as good as minimum. Company will also attach proposals 1 & 2 above.

Federal (Barrows Amendment):

1. Requires same benefit standards as NAIC
2. Requires minimum loss ratio of 65% under 35% group
3. Would require states meet regulation to receive the area, if not federal level of approval would be needed
4. Increase education of buyers
5. Requires a state panel be set up to review or practice

On both federal and NAIC proposals there would be penalties met for the act and the co-pay only

misrepresentation. This should be communicated to agents.

Anticipated loss ratio of 50% would not be approved. Will need to have power with a commensurate reduction in profit or commission.

In the primary will need to account for 2 additional items:

- (1) Recently enacted legislation makes Medicare the primary payer with the group plan primary, which is a change in sequence.
- (2) There are new Section 269 limits on Medicare reimbursements from hospitals which penalize excess charges and reduced loss charge.

Should excel for both of them in non-primary.

Think of the marker when you write your exam

- ☐ Handwriting
- ☐ Headings
- ☐ Concise points
- ☐ Most important points first

How Exam Pass Marks Are Set...

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☐ **No pre-set** pass marks

☐ **Multiple-Choice** examinations:

- estimated pass mark derived from modified “Angoff” passing score study
- compared to and balanced with the actual performance statistics on the examination in finalizing the pass mark
- pass marks now disclosed with results (typically well over 50%)



☐ **Written-Answer** examinations:

- exam committee sets a minimum adequate knowledge point value for each question
- tentative pass mark is set where actual performance statistics are balanced against minimum adequate knowledge
- scores close to the pass mark are re-graded at a central grading session.

☐ **Final pass marks** should produce pass rates that do not deviate significantly from historical rates.

Example of SoA Results...

Multiple–Choice examinations

Exam	Pass Mark	N	# Effective	# Passing	% Passing	% Effective Passing
P	63%*	2627	2112	955	36.4	45.2
FM	70%*	3968	3633	1985	50.0	54.6
MFE	63%	2768	2469	1215	43.9	49.2
MLC	60%	2167	2011	1052	48.5	52.3
C	55%	1763	1698	769	43.6	45.3



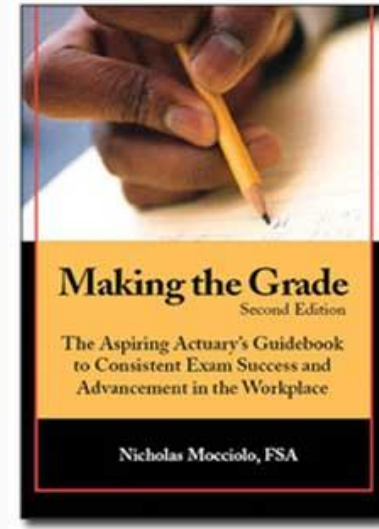
SOCIETY OF ACTUARIES

Written–Answer examinations

Exam	N	# Effective	# Passing	% Passing	% Effective Passing
AFE	82	76	37	45.1	48.7
FETE	432	383	173	40.0	45.2
DP GH	359	342	171	47.6	50.0
DP IU	383	362	173	45.2	47.8
DP IC	71	68	35	49.3	51.5
DP RU	117	113	48	41.0	42.5
DP RC,A	125	120	54	43.2	45.0
DP RC,B	92	86	43	46.7	50.0
EA-2,A	318	301	185	58.2	61.5

References

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- ❑ www.soa.org
- ❑ www.casact.org
- ❑ www.beanactuary.com
- ❑ www.imageoftheactuary.org
- ❑ www.ceranalyst.org
- ❑ www.actexmadriverr.com
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- ❑ www.bpptraining.com



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Support for the exams of the Society of Actuaries and the Casualty Actuarial Society



THANK YOU VERY MUCH FOR YOUR ATTENTION

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