

WHAT IS AN ACTUARY?

ACTUARIES ARE EXPERTS IN:

- Evaluating the likelihood of future events—using numbers, not crystal balls.
- Designing creative ways to reduce the likelihood of undesirable events.
- Decreasing the impact of undesirable events that do occur.

WHAT DO ACTUARIES DO?

WE MANAGE RISK

- Actuaries use a combination of strong analytical skills, business knowledge, and understanding of human behavior to manage today's complex risks facing our society.

WHAT DOES RISK
HAVE TO DO WITH IT?

THE FUTURE IS UNCERTAIN AND FULL OF RISK.

WHAT IS RISK?

- Risk is the chance that an undesirable event will occur, but risk is also opportunity. That's where we come in.

YOUR TURN!

It's your turn to be the actuary. Try your hand at forecasting the future with these sample problems.

AUTO PRICING 101

BACKGROUND:

- ABC Insurance Company insures 1,000 eighteen year old drivers.
- Assume 300 of the 1,000 have accidents within a year.
- Assume the average repair cost for each accident is \$500.

QUESTION: WHAT IS THE MINIMUM PREMIUM THAT ABC SHOULD CHARGE AN 18-YEAR OLD FOR A 1-YEAR CAR INSURANCE POLICY?

AUTO PRICING 101

SOLUTION:

- At a minimum, the total premiums collected must equal the total cost of the accidents.
- Estimated cost of the accidents:
 $300 \times \$500 = \$150,000$
- Minimum premium for each driver:
 $\$150,000 \div 1,000 = \150

CHALLENGE: SHOULD ABC CHARGE MORE THAN THIS PREMIUM? IF SO, WHY?

AUTO PRICING 101

BACKGROUND:

- Assume 400 of the drivers are males and 600 are females.
- Assume 200 out of 300 of accidents will involve males, and the remaining 100 accidents will involve females.

QUESTION: WHAT PREMIUM SHOULD BE CHARGED FOR THE MALES AND THE FEMALES? SHOULD IT BE THE SAME?

AUTO PRICING 101

SOLUTION:

- Total males' premium:
 $200 \text{ accidents} \times \$500 \text{ per accident} = \$100,000$
- Each male's premium:
 $\$100,000 \div 400 \text{ males} = \250
- Total females' premium:
 $100 \text{ accidents} \times \$500 \text{ per accident} = \$50,000$
- Each female's premium:
 $\$50,000 \div 600 \text{ females} = \83.33

THE MALE'S PREMIUM
SHOULD BE THREE TIMES
THE FEMALE'S
PREMIUMS!

AUTO PRICING 101

Are you an average driver?

How could the insurance company measure how good of a driver you are to justify a lower premium?

What complications could arise when more cars are self driving?

A AAA study found that 80% of male drivers believe they are above-average drivers.

WHY DID YOU BECOME
AN ACTUARY?

WHAT'S GREAT
ABOUT THE
PROFESSION?

LIFE AS AN

ACTUARY...

WHAT IT'S LIKE ...

WHERE DO
ACTUARIES
WORK?

NOT JUST INSURANCE.

Although insurance companies can't function without actuaries, that's **not the only place you'll find us.**

- Consulting
- The Government
- Rating bureaus
- Colleges and universities
- Banks and investment firms
- Public accounting firms

WHAT'S GREAT ABOUT THE PROFESSION?

TOP-RANKED JOB

- No matter the source, actuary is consistently rated as one of the best jobs. *US News and World Report, the Jobs Rated Almanac, CNN Money,* and others all agree.

GREAT SALARY

- Actuaries are well compensated. Experienced fellows have the potential to earn from \$150,000 to \$250,000 (USD) annually, and many actuaries earn more than that.
- Actuaries earn while they learn. An entry level actuary with 1-2 exams passed will bring in a starting salary of \$45-\$65,000 (USD) depending on region. <https://www.dwsimpson.com/about/salary-survey/>

WHAT'S GREAT ABOUT THE PROFESSION?

JOB SECURITY:

- Actuaries enjoy certainty in uncertain times. We're always in demand as the world confronts risk.

LIFE IN BALANCE:

- More than a fulfilling career, being an actuary allows you to maintain a low-stress, highly sought-after work/life balance.

MAKE AN IMPACT:

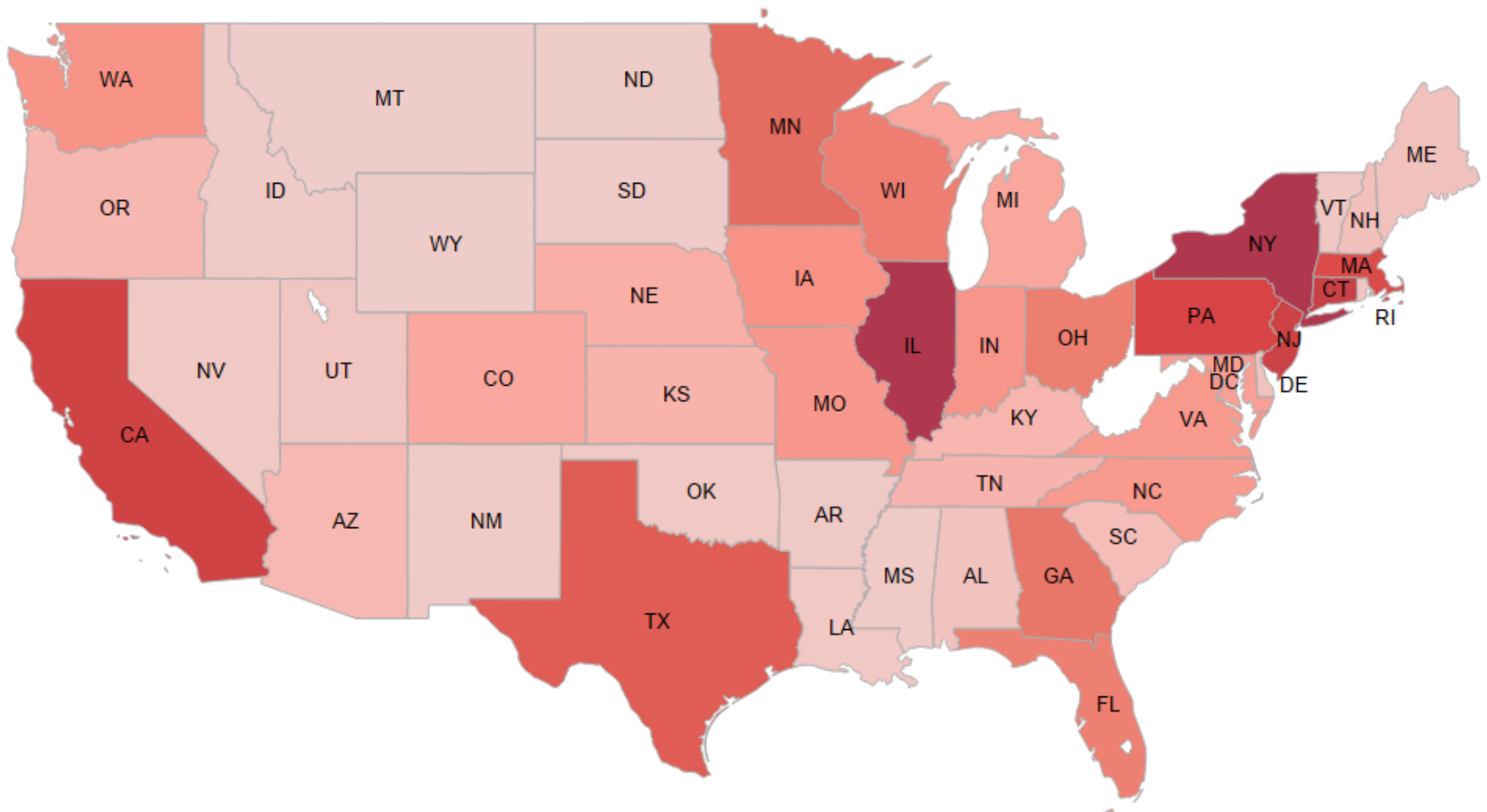
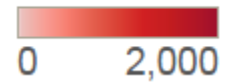
- Actuaries manage today's complex risks facing our society.

WHERE WILL I LIVE?

GEOGRAPHIC REGION	CAS MEMBERSHIP (%)	SOA MEMBERSHIP (%)
United States	84.6	68.6
Canada	8.6	17.6
International members	6.8	13.8

WHERE WILL I LIVE?

Total



WHY DID YOU BECOME AN ACTUARY?

- How I found out about the profession
- Why I became an actuary
- What I like best about being an actuary

MY EXPERIENCE

- Consulting vs. Traditional
- My company's work environment.
- Typical day – if there is such a thing.

LET'S COVER SOME
BASICS...

HOW DO I GET STARTED?

- Computer skills
 - Enroll in computer science courses or start coding with R/Python/SQL/VBA to develop your computer skills.
- AS Courses
 - Look into course offerings at NAU in Actuarial Science – there are several at the undergraduate and graduate level.
- Take some business/accounting/finance classes – some of these will be needed for the associate VEE credits.
- Learn how to effectively communicate – *we are all still improving.*

HOW DO I STAND OUT?

While you're hitting the books, don't forget to

- Look for **internship** opportunities. An internship will give you a head start on an actuarial career with relevant work experience. Start early – mid to late summer before.
- Resume - Write an effective resume – it is more than a bulleted list of jobs. Check out the NAU Career Center “Resume Dropbox” or seek out an independent professional familiar with the actuarial profession.
- Talk to an actuary.
- Start taking exams!
 - There are great free resources online to prepare for some prelim exams.
 - Check out Marcel Finan’s “Actuaries Hall” for some resources: <https://faculty.atu.edu/mfinan/actuaries.html>

THE RIVAL SOCIETIES:

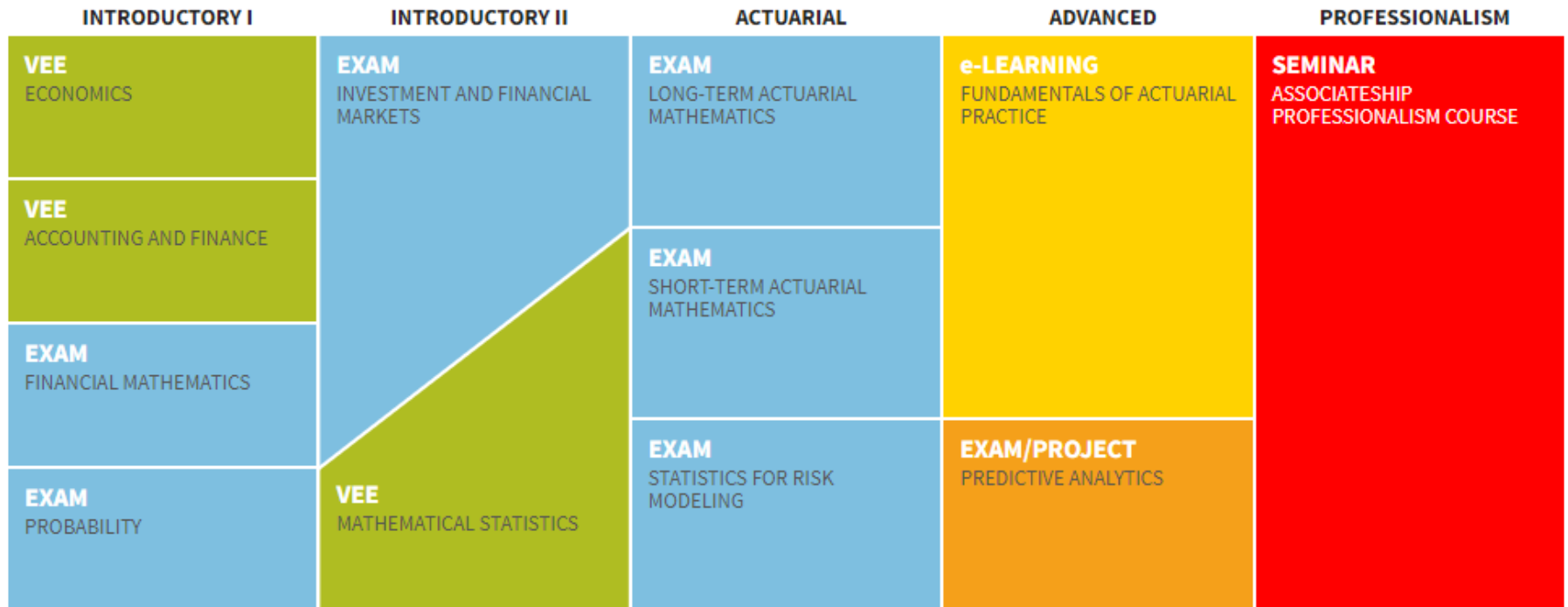
There are two main societies for the actuarial profession that one can get a credential with: CAS, SOA

- CAS – Casualty Actuarial Society – mostly P&C - property and casualty - General Liability, Auto, Home but also WC
- SOA – Society of Actuaries – Life, Health, Retirement.

ASSOCIATESHIP TRACK – SOA

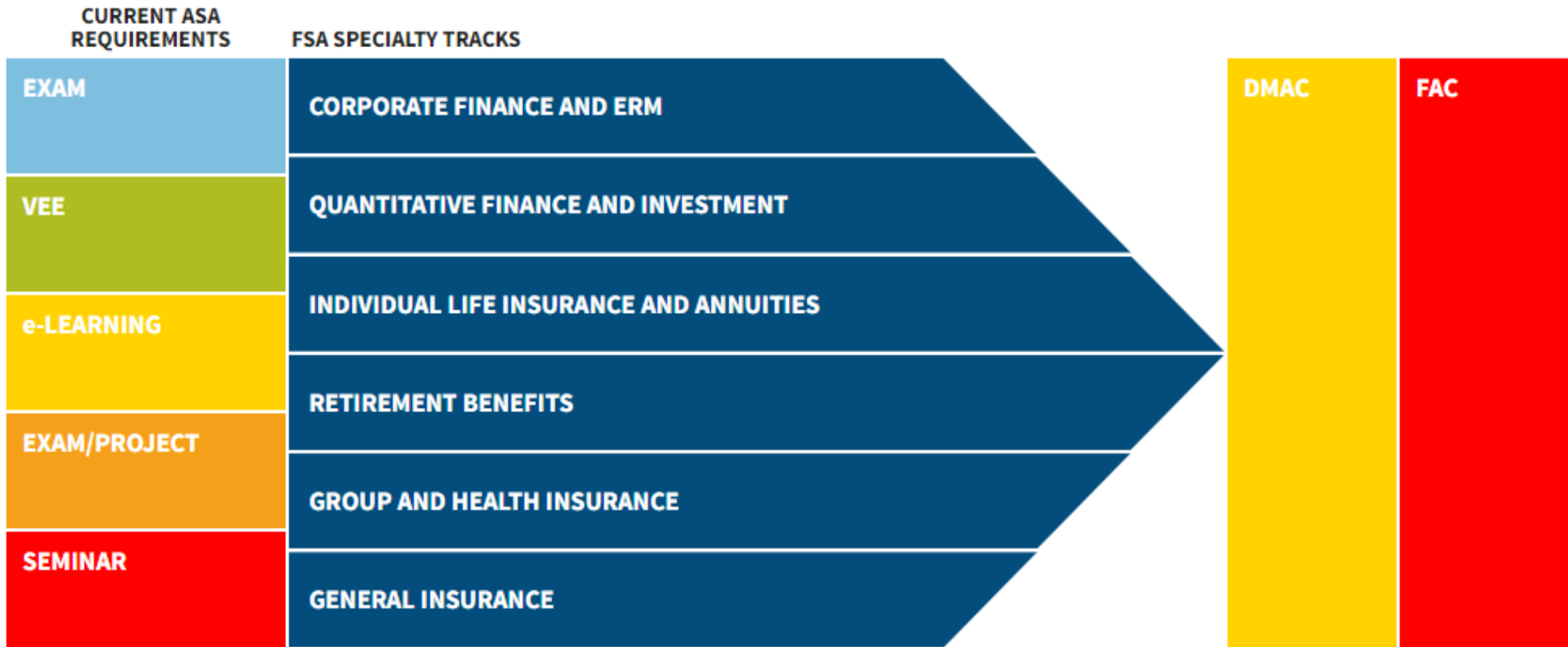
[HTTPS://PATHWAYS.SOA.ORG/ASA](https://pathways.soa.org/asa)

ASA Pathway



FELLOWSHIP TRACK – SOA

[HTTPS://PATHWAYS.SOA.ORG/FSA](https://pathways.soa.org/fsa)



CAS TRACK

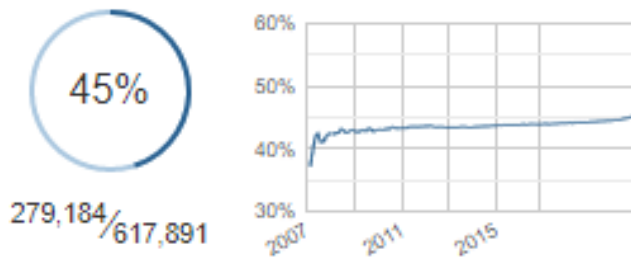
HTTPS://WWW.CASACT.ORG/EXAMS-ADMISSIONS/EXAMS

Link: <https://www.casact.org/exams-admissions/exams>

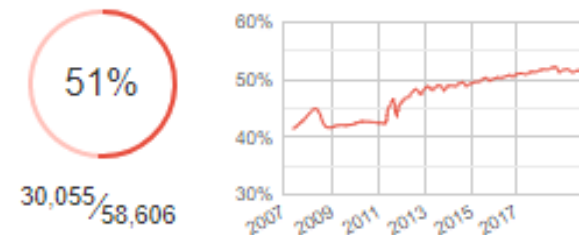
COMMON EXAM QUESTIONS:

- Multiple choice? How hard can it be...? <http://www.actuarial-lookup.com/pass-rates>

SOA Preliminary Exams



CAS Preliminary Exams



- Is there exam support? Are there raises, bonuses, promotions for passing?

EXAM SUPPORT:

- From the Societies - Reimbursements for qualified minority students who pass either of their first two exams.
- NAU may offer reimbursement for exam fees on a successful attempt.

APPLYING FOR JOBS:

- It is competitive. Entry level jobs are typically not through recruiters.
- Interview process is typically several stages.
- Be ready to show-off your skills. Interviews may include some form of a “test”.

Future of the Profession?

THE FUTURE:

- Diverging preliminary qualifications of CAS and SOA.
- Greater interest in predictive analytics in job market and each society.
- The market may be growing in the remote work acceptance.

QUESTIONS?

Sources

- <http://www.soa.org/>
- <http://www.casact.org/>
- <http://www.BeAnActuary.org>
- <http://www.actuarial-lookup.com/>
- <https://faculty.atu.edu/mfinan/actuaries.html>