Everything Actuarial Workshop



Meet the team!

Maansi Kandula



Career Chair

Zabelle Bobelian



CAS Ambassador

Akash Fewell



IM Sports Chair

Agenda

- What is an actuary?
- Actuarial Math major
  - Course Requirements
- Industry Overview
  - Insurance vs Consulting
  - Society of Actuaries (SOA)
  - Casualty Actuarial Society (CAS)
- Exam Process
  - Study Materials
- VEE Credit Process
- Additional Resources

What's an Actuary?

- **Actuary:** A business professional who analyzes the consequence of **risk**



What's an Actuary?



Compile and analyze statistical data and other information to measure and manage risk



Develop and communicate solutions for complex financial issues.



Have a deep understanding of mathematics, statistics and business management.



Help leaders make strategic decisions and consumers prepare for their future.

Actuarial Math Major

- The Actuarial Math Program is a *sub-major* for the Mathematics Major
  - Center of Actuarial Excellence (CAE) and University-Earned Credit (UEC) of 15 in the US
- Offers specific courses that help student pass Actuarial Exams
  - i.e. MATH 425 → ~85% Exam P
  - i.e. MATH 424 → ~85% Exam FM
- Declared majors get reimbursed for exam costs (if you pass)
- Actuarial Advisor and Program Director: Professor Roger Natarajan (rogernat@umich.edu)
  - See for help with finding scholarships!
  - Award of $1000 for students who declare Actuarial Math as their major & complete Math 215, 217, 425, & 424



Actuarial Course Requirements

(*) min grade of "C minus" required

☆ You pick two of these four courses to complete

Cognates Suggested (2 Required)

- **FIN 302** Making Financial Decisions (SOA VEE Accounting & Finance)
- **ACC 302** Financial Accounting (SOA VEE Accounting & Finance)
- **DATASCI 415** Data Mining and Statistical Learning (Exam SRM)
- **TO 414** Advanced Analytics for Management Consulting (Exam PA)

CORE Courses

- **MA 423** ☆ Mathematics of Finance
- **MA 528** ☆ Topics in Casualty Insurance
- **MA 521** ☆ Life Contingencies Part II (Exam ALTAM)
- **MA 524** ☆ Loss Models II (Exam ASTAM)
- **MA 523 (*)** Loss Models I (Exam FAM)
- **MA 520 (*)** Life Contingencies Part I (Exam FAM)
- **MA 424 (*)** Mathematical Interest Theory (Exam FM)

BASIC Courses

- **MA 316 (*)** Differential Equations OR MA 286
- **MA 351 (*)** Principles of Analysis OR MA 451
- **MA 425 (*)** Introduction To Probability (Exam P)
- **STATS 426 (*)** Introductory Theoretical Statistics (SOA VEE Mathematical Statistics)

Pre-requisites

- **MA 215** Calculus III OR 255/285/295
- **MA 217** Linear Algebra OR 296/395
- **ECON 101** Microeconomics (SOA VEE MicroEconomics)
- **ECON 102** Macroeconomics (SOA VEE MacroEconomics)
- **EECS 183** Elementary Programming Concepts

plan your courses based on exam sittings!

Sample Curriculum of a Student
(**With** Credit for Calculus I & II)

	FALL	WINTER	EXAM / INTERNSHIP
FRESHMAN	MA 215	MA 425	
	EECS 183	MA 217	Exam P – July
	ECON 101 (VEE)	ECON 102 (VEE)	
SOPHOMORE	MA 424	Math 351	Exam FM – Feb
	STATS 426 (VEE)	MA 415 (*)	Exam SRM – Sep
	ACC 302 (VEE)	FIN 302 (VEE)	Internship
JUNIOR	MA 423	TO 414 (*)	Exam PA – Apr
	MA 520	MA 521	
			Internship
SENIOR	MA 523	MA 524	Exam FAM – Oct
	MA 316		Exam ALTAM/ASTAM – Apr
			Full Time Job

(*) suggested additional courses

Come to our Course Planning Workshop!

- November 4th (tentative date)
- Work with SAM mentors for personalized help!

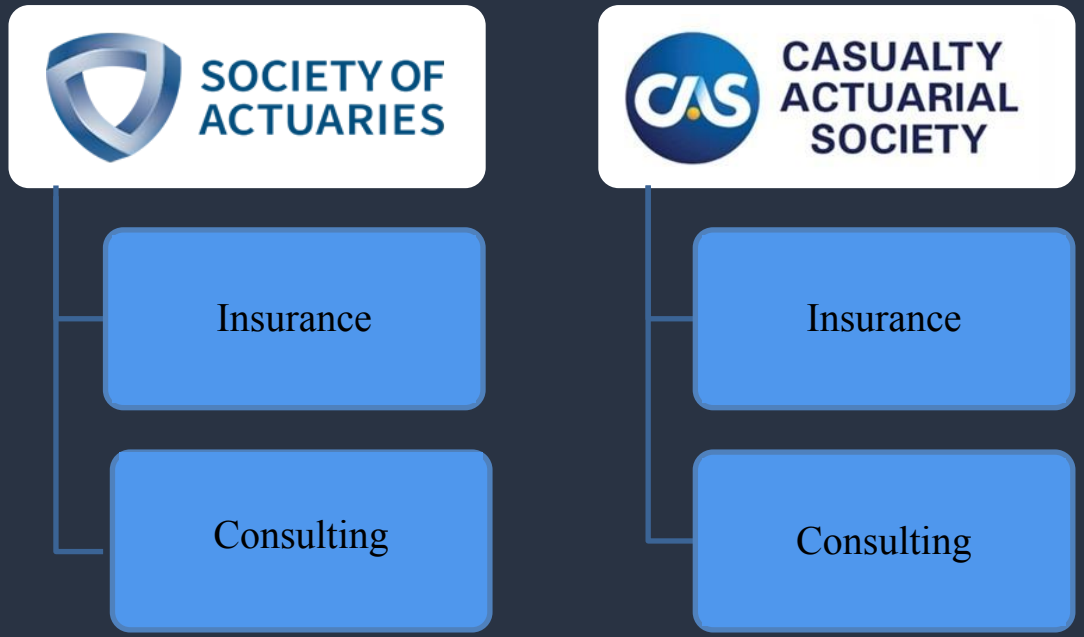
	FALL	WINTER	EXAM / INTERNSHIP
FRESHMAN	MA 215	MA 425	
	EECS 183	MA 217	Exam P – July
	ECON 101 (VEE)	ECON 102 (VEE)	
SOPHOMORE	MA 424	Math 351	Exam FM – Feb
	STATS 426 (VEE)	MA 415 (*)	Exam SRM – Sep
	ACC 302 (VEE)	FIN 302 (VEE)	Internship
JUNIOR	MA 423	TO 414 (*)	Exam PA – Apr
	MA 520	MA 521	
			Internship
SENIOR	MA 523	MA 524	Exam FAM – Oct
	MA 316		Exam ALTAM/ASTAM – Apr
			Full Time Job

(*) suggested additional courses

	Exam P	Exam FM	Exam SRM	Exam FAM	Exam ASTAM	Exam ALTAM	Exam PA
MA 422				3 %			
MA 423				5 %			
MA 425	84 %						
MA 424		87 %					
MA 520				42 %			
MA 521						82 %	
MA 523	13 %			21 %	37 %		
MA 524			6 %	17 %	49 %		
STATS 415			78 %				
TO 414							80+ %
Total	**97 %**	**87 %**	**84 %**	**88 %**	**86 %**	**82 %**	**80+ %**

	Dur.	Type	# of Qs	Fees	Courses Supporting the Exams
Exam P	3.0 Hrs.	MC	30	$ 260	MA 425 (84%), 523 (13%)
Exam FM	2.5	MC	30	$ 260	MA 424 (87%)
Exam MAS-I	4.0	MC	~42	$ 440	MA 520 (7.5%), MA 523 (20%), Stats 413 (40%), Stats 426 (15%)
Exam MAS-II	4.0	MC	~42	$ 440	MA 524 (20%), Stats 415 (40%)
Exam 5	4.0	MC&FR	~25	$ 680	Prereq: Exams P and FM
Exam 6	4.0	MC&FR	~25	$ 680	Prereq: Exams P and FM
DISC DA	--	E-Module		$ 390	No Prerequisites
DISC RM	--	E-Module		$ 390	No Prerequisites
DISC IA	--	E-Module		$ 390	No Prerequisites

Industry Overview



Insurance

- fewer hours, better work-life balance
- better study programs
- more routine, stable work





Consulting

- higher average salary
- opportunities to travel
- fast-paced, client facing
- more variety of work

Society of Actuaries (SOA)

MEMBERS:
35k

FSA TRACKS:
6

CERTIFICATIONS:
2

1. ASA
2. FSA

Corporate Finance & FRM

Quantitative Finance &

Investment

Life & Annuities

Retirement Benefits

Group & Health




Humana
UnitedHealthcare
BlueCross BlueShield
MERCER
RGA
Cigna
KPMG
Companies that hire SOA Actuaries
JACKSON
NATIONAL LIFE INSURANCE COMPANY
CVSHealth
Milliman
NEW YORK LIFE
AIG
Swiss Re
Northwestern Mutual
AON
pwc
Deloitte.
Willis Towers Watson

Casualty Actuarial Society (CAS)

MEMBERS:
11k

CERTIFICATIONS:
2

1. ACAS
2. FCAS

AREAS OF INTEREST

- Auto Insurance
- Property Insurance
- Liabilities
- Worker's Compensation
- Lawyers, Doctors, Businesses

...and more!



Companies that hire CAS Actuaries

















Nationwide











ZURICH

pwc



*many companies have positions for both SOA and CAS actuaries, and this is a non-exhaustive list!



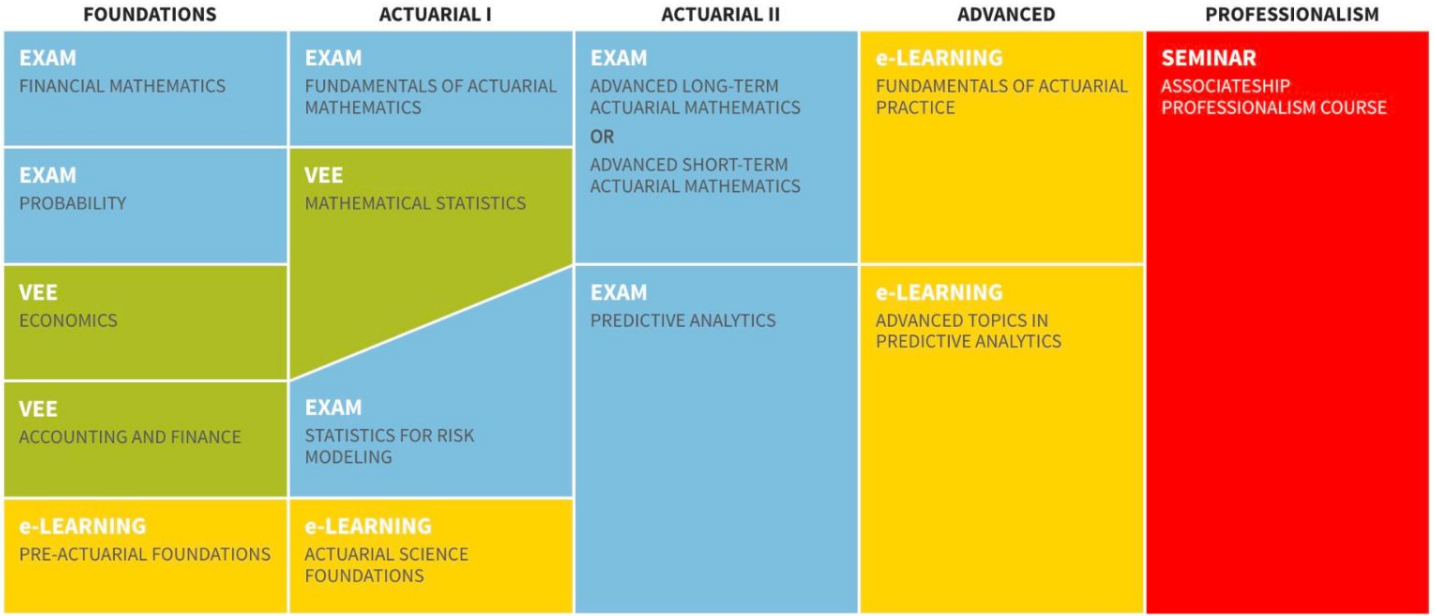
Deloitte.

PROGRESSIVE

Allstate
You're in good hands.

Understanding Exam Paths

SOA Path



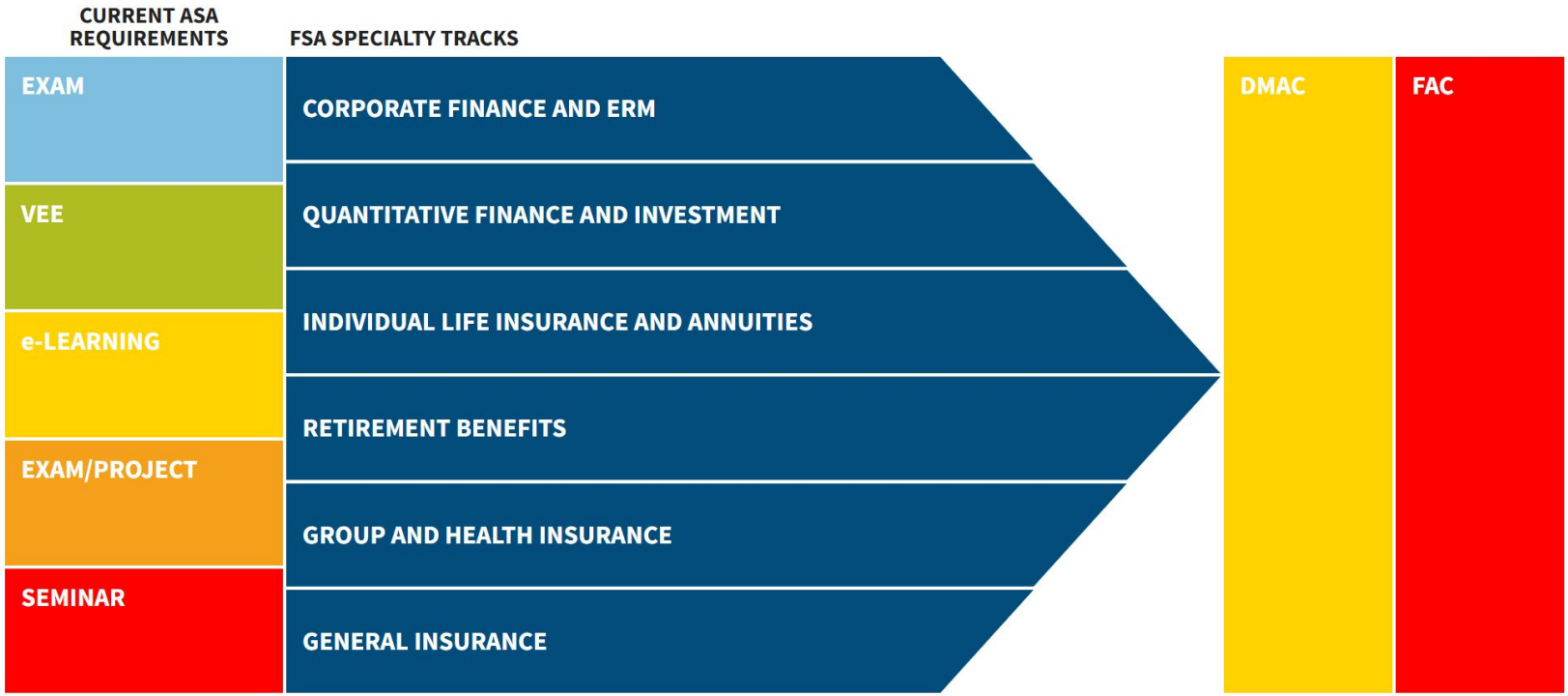
Source: https://pathways.soa.org/designations/asa

Understanding Exam Paths

SOA Path

*This structure has changed significantly, but it's not something that the majority of students have to be concerned with. Big Picture: There are tracks that specify which exams you take and you can enroll in electives.

FSA Pathway



SOA VEE Process

Course	VEE
ECON 101 + ECON 102	Economics
STATS 426	Mathematical Statistics
ACC 302 + FIN 302	Accounting and Finance

Step 1

- Be a dues-paying member of SAM
- Declare actuarial math major
- Take VEE courses at Michigan
- Be an enrolled student when all materials submitted

Step 2

- Fill out exam reimbursement form
- Proof of payment to SOA
- Confirmation that SOA has approved the courses*

Step 3

- Get your money back when the exam reimbursement is processed

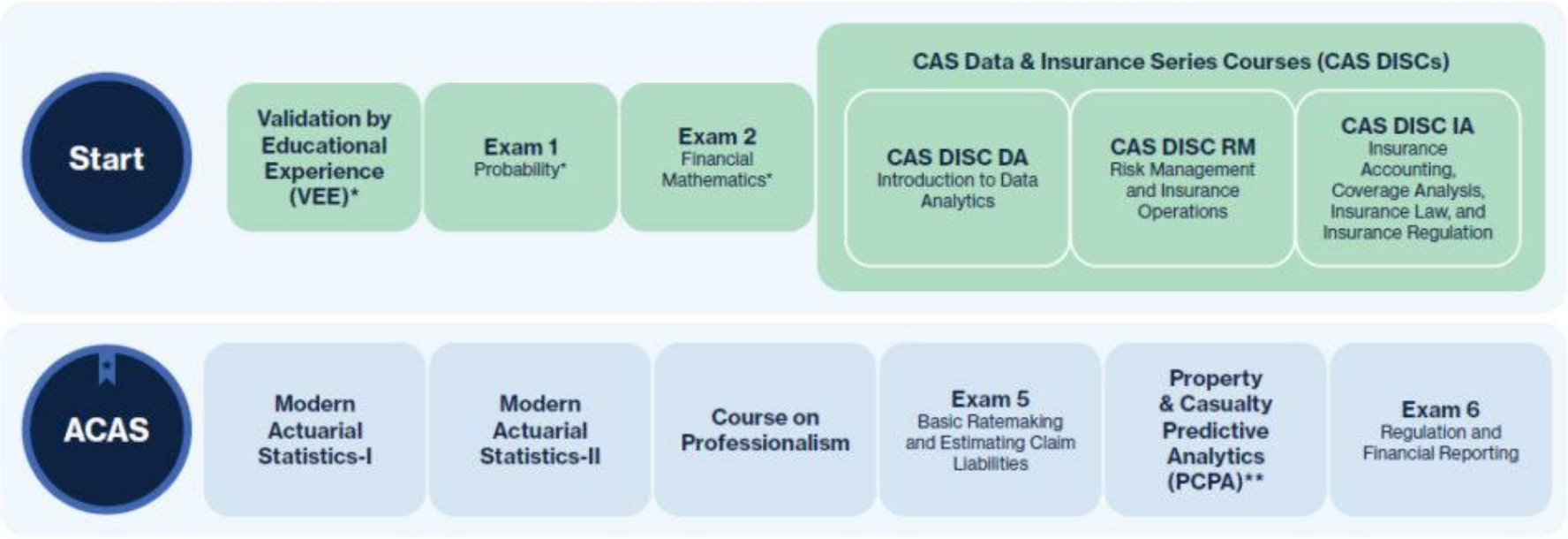
Timeline

Note: Students can only apply for reimbursement after receiving all 3 VEEs

*In the final semester of senior year, you may submit VEE reimbursements without having all 3 credits and without waiting for SOA approval

Understanding Exam Paths

CAS Path



Starting Fall 2025, the new PCPA exam and project will also be required for Associateship

Source: https://www.casact.org/education/exam-info

Understanding Exam Paths

CAS Path

SELECT CREDENTIALS



Actuarial candidates must complete a set of requirements, including passing a series of exams, to become credentialed property and casualty actuaries and members of the CAS. The requirements outlined in the CAS Path to Success will lead you to the highly coveted Associate of the CAS, or ACAS and Fellow of the CAS, or FCAS, designations.

SELECT AN EXAM

Exam 7 | Exam 8 | Exam 9

CAS Details

- Register to take P and FM through SOA (or obtain through UEC)
- Sign up for CAS Student Central
  - Student Central Summer program
    - Free 8-week online program, about 10 hrs per week
    - Mentor-led or Independent
    - Apply during spring, great for freshmen/experience before internships
  - CAS P&C Actuarial Essentials Program
    - Independent program based on summer program materials
  - Case competition and networking opportunities
- Accepts VEE Credentials through the SOA
  - Accounting/Finance
  - Economics

Exam Process

1

Register for Exam (months in advance)

- www.soa.org
- Create an account: Log In -> Create an Account
- Register: Education and Exams -> Exam Registration -> Select Exam from Menu

2

Sign Up for Exam Location

- After confirming payment, you will receive an email from the SOA with receipt and confirmation number
- Search SOA on Prometric -> Schedule
- Use Candidate ID to schedule appointment

**Note: save your receipt for reimbursement

3

Recommended Study Plan

- Take the associated class first
- Then use an outside resource
  - Coaching Actuaries (CA)
  - The Infinite Actuary (TIA)
  - Actex Manual
- **100 hours per hour of exam**

4

Exam Day

- For CBT, you only need to bring your ID and a calculator (bring a spare)
- A packet of paper and a pen will be provided
- Everything but your ID will be locked until the end of your exam (keys, wallet, etc...)
- Be confident!

5

Reimbursement

- Revisit your email to find the receipt of payment
- Screenshot unofficial confirmation of pass
- Submit documents to the Google Survey on SAM website-> Resources -> Exam Resources

Study Materials

- **Coaching Actuaries (CA)**
  - SAM is a Campus Club – dues-paying members receive exclusive discounts
    - 25% for Practice
    - 50% for Practice + Learn Lite
    - 70% for Practice + Learn Complete
  - Contact President Raegan Gothard or CA/UC Ambassador Eason Lin for codes
- **The Infinite Actuary (TIA)**
  - Free courses for P and FM right now!
- **Manuals** (from our SAM library)
  - Actuarial Study Materials, ACTEX
  - Contact Exam Chair Ashni Kansara to check out
- **Introduction to Statistical Learning** with Python or R (SRM, PA, MAS-I, MAS-II)
- Syllabi and course materials

Products and Resources

Product Comparison

	Practice	Learn Lite + Practice	Learn Complete + Practice
Adapt Exams and Custom Quizzes	✔	✔	✔
Online Manuals and Study Scheduler		✔	✔
Lesson Videos and Review Videos			✔

Additional Resources



Discussion Forums

Connect with coaches and other students to ask questions and diver deeper.



Study Scheduler

Pace your learning progress and have confidence you'll cover all your materials.



Formula Sheets

Download free formula sheets for quick reference and refreshers for any course.

Additional Resources

VEE Credits:
CAS
SOA
SOA/CAS Accounts:
CAS Student Central
SOA
Exam Registration:
SOA Exam Registration
CAS Exam Registration (after P&FM)
PCPA CAS Exam Info
UM:
Actuarial Mathematics Major at UM

SAM Website:
Exam Resources
New Member Resources
Workshops
Contacts
Study Materials:
Coaching Actuaries (CA)
Launchpad (with CA)
The Infinite Actuary (TIA)
ACTEX Manuals (manual checkout)
ASM Manuals
Howard Mahler Exam Manuals
Introduction to Statistical Learning

Questions?