FUTURE FELLOWS

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Beyond Equations: The Future-Proof Actuary

By Daniel Drabik, ACAS

s dedicating multiple years, thousands of study hours, to learn many ever-evolving, extremely difficult actuarial concepts and equations enough to become credentialed? Absolutely! The exams do an outstanding job preparing candidates with the necessary tools to become effective actuaries. Actuaries need to know the numbers, and passing exams are the means to ensuring that. Passing numerous challenging exams is a significant accomplishment, worthy of praise and marks the end of a long, arduous journey.

However, becoming a credentialed actuary is just the beginning. Going beyond the equations to uncover the story behind the numbers is key. Actuaries have historically been relied upon for their quantitative expertise and more recently are increasingly asked to build tools for core insurance functions, such as pricing, reserving and capital modeling. This is why exams now include aspects of coding; knowing the math behind the model ensures the accuracy of the code, a crucial step that takes years to master.

Knowing the math and coding is an advantageous foundation for becoming an influential storyteller. The key here is to become a storyteller. Our minds are wired to enjoy, comprehend and remember stories. Crafting a compelling story involves prioritizing information and knowing which words work best to address the various needs of different audiences. Answering potentially ambiguous questions clearly and confidently for executives becomes even more paramount as a credentialed actuary; the audience shifts from exam graders to a mix of actuarial and non-actuarial business partners.

So, what's the answer? How do we become effective storytellers? Analogies. Selecting analogies that resonate with your audience can help

connect the familiar to the unfamiliar. Cakes are likely more familiar (and more enjoyable) to most audiences than unfamiliar and complex math. The analogy of a cake, for example, can be used to explain a GLM: more precise ingredients, such as higher-quality flour, contribute to higher-quality cakes; more precise techniques, such as GLMs, contribute to higher-quality, more accurate predictions. Analogies can help make concepts more concrete, emphasizing the relationships involved versus the complex math involved.

The exciting news is that higher-level exams increasingly recognize the importance of storytelling. Actuaries need to know not just what to do, the math or the mechanics behind a model or product, but why it's being done. They must also explain and advocate for certain actions to non-technical or non-actuarial audiences. Actuaries are becoming more responsible for not only predicting the future but also explaining it effectively. This sounds easy but is hard to do. The importance cannot be overstated. This requires humility, acknowledging that mastering technical skills is a means to an end and not the end itself. Conceptually, a story is simpler and easier to understand than complex actuarial jargon. The key to futureproofing as an actuarial professional is to embrace continuous improvement in communication skills, even after becoming credentialed.

The investment in continuously developing communication skills is worth it, as it ensures that others understand actuarial insights. This not only enhances individual careers but also strengthens the profession collectively. The actuarial profession's future lies in this blend of technical excellence and compelling storytelling

Calendar of Events

CAS Annual Meeting

Phoenix, Arizona November 3-6, 2024

CAS Virtual Pricing/ Underwriting Seminar

Online Event December 11, 2024

Ratemaking, Product and Modeling Seminar (RPM)

Kissimmee, FL March 9–12, 2025

CAS Spring Meeting

Toronto, Ontario, Canada May 4–7, 2025

Learn More and Register at casact.org/calendar





Calculating Confidence: How to Conquer Imposter Syndrome

By Emily Miske, ACAS

ou are your own worst critic." It's likely you've been told this before. We've all been too tough on ourselves at some point. Maybe you thought that you aren't smart enough, not experienced enough, or not capable enough for the situation you've found yourself in. Perhaps you've been given a new project or responsibility at work and, while you're grateful for the opportunity, you can't help but feel like you haven't truly earned it — you've simply managed to trick people into believing that you're capable, when secretly, you're not cut out for it (spoiler alert: you probably are cut out for it).

Sound familiar? This feeling of intellectual inadequacy is no isolated experience and certainly isn't new. First coined in 1978 by clinical psychologists Pauline Rose Clance and Suzanne Imes, "imposter phenomenon" was first studied in family dynamics. Colloquially, "imposter syndrome" is a feeling of self-doubt that early-career professionals often face in the workplace. It's estimated that at least 80% of people experience imposter syndrome at some point in their lives, and the rates are even higher for women and people of color (source: UC). According to Psychology Today, imposter syndrome is characterized as follows:

"People who struggle with imposter syndrome believe that they are undeserving of their achievements and the high esteem in which they are, in fact, generally held. They feel that they aren't as competent or intelligent as others might think — and that soon enough, people will discover the truth about them."

Especially in actuarial science, being a beginner is daunting. The fact that you've even considered embarking on this career path is evidence that you are likely a high achiever and are generally used to enjoying a high level of competency in compli-

cated concepts. Learning the ropes of actuarial science and insurance may be your biggest challenge to date, and it can be even more discouraging when you don't yet have actuarial credentials.

In contrast, experienced actuaries seem to know everything effortlessly, and the letters after their names reinforce this perceived expertise. Luckily, plenty of successful and accomplished actuaries experienced imposter syndrome starting out. You might be surprised to learn that it never seems to go away completely, but there are some key tips actuaries have learned along the way that you can implement to reduce imposter syndrome's impact on your career and development.

- Understand that others' expectations of you may not be as unattainably high as those you've imposed upon yourself.
 - It's natural to be hyper-aware of your own work performance and output. You're the only person in the world who walks in your shoes and knows every detail of your own understanding, or lack thereof. Odds are, no one else is putting the same degree of scrutiny on you that you are. If you're starting a new role or project, it would be unfair and simply unrealistic for anyone to expect you to be an expert. Take the pressure to be perfect off of yourself! Instead, put trust in your manager's insight that you have been assigned particular challenging tasks because you have demonstrated your capability and potential (even if you're still not fully convinced.)
 - Dan Watt, FCAS, emphasizes, "It's really important to know that in your career, your exam progress, and your general understanding of actuarial science is a marathon, not a sprint. You'll feel a lot less stress if you take

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that off your shoulders. You're not expected to be a fully knowledgeable actuary in three years. It's going to take a long time, and that's okay. It's expected."

- Find a mentor whose opinion you value to discuss your concerns.
 - A great mentor can discuss your concerns with you and help you to decipher what might truly be areas of improvement for you, helping to reduce baseless self-doubt. Once the doubts have been alleviated, you can spend your time and energy focusing on the areas that can be improved with the help of your mentor's insights and constructive criticism.
 - They can also share their own experiences with you. Knowing that someone you respect has also experienced imposter syndrome at some point can demonstrate that you will also go on to accomplish great things in your career despite the feelings you're currently having.
 - It's especially important to find a mentor who will uplift you and not judge your struggles with imposter syndrome. Watt recommends a formal mentor-mentee relationship: "Formalize it, then the conversations you have will be confidential. If your company doesn't have a formal mentor program, have one-on-ones with different people until it feels right, and then officially ask them if they would be your mentor." The right mentor will not hold your self-doubts against you in the work-place but will advocate for you based on the growth they've seen throughout your conversations.
- Accept that imposter syndrome never fully goes away.
 - The insurance industry is constantly changing, as new risks emerge, and processes develop perpetually. Given the rate at which new information becomes available, no individual actuary can possibly know everything all the time, even the most experienced ones. You'll inevitably learn something new every day, so the sooner you get comfortable with being uncomfortable, the more confident you'll be.
 - Watt says, "You're going to have imposter syndrome. So now

- that you know you have it, it's been identified. Now close your eyes, jump and try this new thing. I mean, it's going to be scary, sure. I've been an actuary for 14 years now, and it's still there. Not as strong as it was back when I was first starting, but it's still there."
- Don't wait for imposter syndrome to go away because you'll miss out on opportunities to grow in the meantime. The best way to learn is by doing.
- In a world where everyone is their own worst critic, try being your own biggest advocate.
 - Reflect on all you've learned since starting your journey, focusing on how far you've come since then. Whether you're three years or one week in a new role, you certainly know more than you did when you started. Don't sell yourself short!
 - One way that I remind myself how far I've come is by volunteering as a mentor for the CAS Student Central Summer Program. While I still feel relatively new to the world of actuarial science, mentoring college students who are first considering this career path reminds me how far I've come since I was in their shoes. Many of the questions they have are the same ones I had when I first started out, and now I'm able to answer these questions from my own professional experiences. Being three years into my career puts me in an ideal position not only to impart my knowledge, but to remember and relate to the feeling of learning something new. Sharing these perspectives is a rewarding experience and reminds me how far I've come.

Although imposter syndrome may never fully go away, it does get easier to manage and ignore as time goes on. While it can inhibit your development and goals if you allow it, it can also serve as a motivator to improve and a reminder of the progress you've made so far. Empower yourself to take on new challenges and continue growing, even when you have doubts. Remember: "A comfort zone is a beautiful place, but nothing ever grows there" – Unknown. ff

Sources:

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Beyond Equations: The Future-Proof Actuary

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two sides of the same coin that together will keep the profession thriving and respected.

Editor's note: To learn more about storytelling, see the Actuarial

Review article, "Tell a Story; Get Results," by Laurie McClellan. ff

Fuel Your Focus: Wellness Strategies for Exam Preparation

By Curt Glatz, CAWG Candidate Representative

is going to take over our jobs!"
We hear that phrase everywhere. For all the cool and impressive things AI can do, such as write complex code in seconds, create silly yet realistic images of real people and draft research papers, it can't pass actuarial exams (at least as of the time I'm writing this). Maybe it just lacks the data, but I think what makes the tests so difficult, even for machines, is that they require high levels of critical thinking and adaptability in order to pass.

We build those skills by studying for the exams. While many hours spent reading the material and solving practice problems is the path to understanding, your brain stores all the knowledge you acquire and recalls it on test day. This article can give you some ideas and tips for how to take care of your most important organ so that you can make the most out of your studying and be a healthier actuary.

Diet

Like other organs, your brain needs nutrients. An unhealthy diet can make it harder to focus and can negatively impact your memory, two very catastrophic problems as an actuary.

Eating fruits and vegetables is an obvious must. Those are loaded with vitamins, minerals and antioxidants, all of which contribute to a healthy mind and body. However, fruits and vegetables aren't the only foods with antioxidants. Coffee, tea and nuts are all good sources. Surprisingly, dark chocolate is one of the best sources of antioxidants.¹

Omega-3 fatty acids are important for brain health and are under consumed in the American diet. They're commonly found in fish, but you can take fish oil supplements, or algae supplements if you have dietary restrictions against fish, to get your daily recommended amount. Some other foods you can add to your diet that are good for brain health (and overall health) are ginger, garlic and olive oil.^{2,3,4}

Physical activity and mental wellbeing

We're actuaries, so most of us opted to be "mathletes" instead of athletes, but physical activity is still very important. Your brain doesn't work independent of the rest of your body; it relies on your other organs to function properly. Regular physical activity has numerous benefits for your body, keeping the whole system healthy.

Physical activity doesn't need to be anything extreme. A simple 20-minute walk every day can go a long way toward keeping your body and brain in good condition. According to a study performed by UT Southwestern, regular exercise can improve blood flow to

the brain, which may even slow the onset of cognitive decline.⁵

Exercise also helps reduce stress.⁶ Stress and anxiety can make studying feel even more cumbersome and make it harder to retain information.



Since exam season can often coincide with busy periods at work, it can be easy to skip workouts and always be on the go with minimal breaks. However, those efforts to save time might actually be holding you back from reaching your full potential. Taking breaks to move around or meditate will help reduce stress.⁷

Meditation doesn't have to be a whole ordeal where you light incense and sit crisscross on a Persian rug. It can be as simple as closing your eyes at your desk after finishing a task and focusing on deep, controlled breaths. It may feel like nothing, which is exactly what you're doing, but the mental break is great for reducing stress and helping you feel clearheaded before you move on to new tasks.

Consistent sleep schedule

The last thing you want while studying is to constantly forget what you learned yesterday (or worse, the last few months). According to the Yale School of Medicine, sleep is a crucial part of forming and storing long-term memories.⁸ If you're skipping sleep to get that extra hour of study in, you may actually be doing more harm than good.

Here's some habits that may help with getting good quality sleep:

- Going to bed and waking up around the same time every day, including weekends.
- Avoiding blue-light sources before bed (i.e., avoid electronics).
 - If you're unable to avoid screens, installing a blue-light filter on your phone/computer can help, as well as blue-light glasses.
- · Getting sufficient sunlight exposure, especially in the morning.
- Minimizing caffeine use, especially before bed.

Conclusion

Exam season is challenging and a true test of discipline but taking care of your brain can make studying less of a struggle. Even more important than passing your exams, better health means you can enjoy the time you have with friends, family and hobbies in the off season even more. **f**

^{1 (}Katz, Doughty and and Ali 2011).

² (Soonmin Lim 2014).

³ (Matthew and Biju 2008).

^{4 (}Berman 2023).

⁽UT Southwestern 2021).

⁶ (Harvard Health Publishing 2020).

^{7 (}Madhav Goyal 2014).

^{8 (}Blumberg MD, Dragoi MD and and Mazure PhD 2022).

Exams IRL: Exam 5

By Dallin Biorn, CAWG Candidate Representative

ith this column, we're bringing back a *Future Fellows* series with a fresh perspective. In June 2021, "Exams In Real Life," or "Exams IRL," began as a way to examine how content from CAS exams are used on the job in real life. The *Future Fellows* issues this year have already addressed MAS I and II (see links below). This column will explore Exam 5-Basic Techniques for Ratemaking and Estimating Claim Liabilities. In essence, we would like to supply a little motivation by answering "Why am I learning this stuff?" and "When am I ever going to use any of it?"

Exam 5 in many ways provides the foundational concepts for P&C actuarial work. All of us have likely been asked what we do for work, only to receive a blank stare of confusion when we respond, "I'm an actuary!" If the unknown of our profession piques the interest of our questioner, then the explanation we

provide likely includes some idea from Exam 5. Statements like "I price insurance," "I handle risk," "I make sure insurance companies can pay their claims," and "I predict the future" all point to Exam 5.

"I price insurance."

This exam has two overarching sections in its syllabus, the first being ratemaking: the "rate" being the price, or premium, an insured will pay and the "making" being the process

of finding said price. Exam 5 covers ratemaking ideas such as trending, on-leveling, development, and expense or profit loads. Many entry-level actuarial analysts utilize these concepts early in their careers during rate reviews. It all leads to an "indication," a target amount the aggregate premium for a book of business needs to change. Studying for Exam 5 will provide the opportunity to dive deep into the math behind the indications process and better understand assumptions and alternative methods along the way.

"I handle risk."

Another critical component of the ratemaking section on Exam 5 is risk classification. In pricing insurance, actuaries can successfully select a percentage by which the aggregate premium should change, but if attention isn't paid to the resulting impact on individual policyholders, rates can quickly become inaccurate. Learning about the pitfall of adverse selection and how to avoid it is critical to an actuary's success, and Exam 5 provides the first look at how to practice favorable selection. CAS candidates will learn how to analyze whether risk char-

acteristics are useful and appropriate. For example, a vehicle's model year may be very useful at differentiating insureds, but using a variable like household income is likely to be considered an inva-

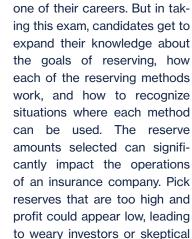
Exams IRL 2024 Archive

MAS II

sion of privacy and therefore shouldn't be used. After the right combo of characteristics is found, Exam 5 teaches how they can be used to accurately make a rate, or price, at an individual level.

"I make sure insurance companies can pay their claims."

The other section of the Exam 5 syllabus is reserving. Again, reserving concepts are sometimes used by actuaries on day





regulators. Pick too low and a deteriorating loss experience could lead to an inability to indemnify insureds.

"I predict the future."

The saying goes, "history repeats itself." Actuaries may rely on this truth more so than any other profession. At its core, Exam 5 is all about using the past, with strict assumptions and proven practices, to predict the future (with some uncertainty of course). This involves everything already discussed as well as important topics such as credibility, statistical modeling and adjusting for anomalies in loss experience. The final boss of Exam 5 is cohesively putting it all together to craft our best guess of what the future will hold and the response best suited to the possibilities.

Every actuarial exam we take is challenging, stressful and ultimately rewarding. The first few exams lay a mathematical foundation actuaries need. Exam 5 is the first where real-world application is paramount in everything you learn. The methods and concepts acquired will guide you for the rest of your actuarial career! **f**_f

Important Soft Skills for Actuaries and Ways to Improve Them

By Ildiko Ban, FCAS

or most candidates, a top priority is to progress with exams, so a lot of planning and thought goes into mapping out exam progression over multiple years. Many candidates plan out every four to six months of the year via detailed study plans and schedules for each available exam sitting. Those plans help students stay on track and, when followed, increase their chances of passing these exams.

The same level of rigor is not usually applied to developing additional skills, especially soft skills, even though those are also key for a successful career progression. In this article, I explore some of the soft skills that proved most crucial throughout my career so far and provide examples on ways to improve them. After reading this article, the first step you should take if you want to improve any of these skills is to do an honest self-evaluation and figure out what are the areas where you might need improvement.

Communication skills — This is likely the most obvious one, and it is listed first given how crucial it is. Improving your communication skills early on can help set you apart from other internship applicants and expedite securing a full-time offer or promotion. When doing a self-evaluation for this, you should examine both your oral and written communication skills. Also, don't be afraid to ask for feedback from your supervisor and your colleagues. Here are some key areas to focus on when improving your communication skills:

 Learn how to write efficient and concise emails. They should showcase your expertise and provide all necessary details but shouldn't overwhelm your recipients. If ever you feel your email is too long for your audience to understand the topic, I encourage you to reevaluate if email is the right type of communication. Would a meeting and quick presentation better convey the message?

- Learn how to give engaging and persuasive presentations. In our line of work, we often present an analysis to senior leadership or other stakeholders, and we need to convince them to accept our proposal. It is important not to place the focus on trying to present the entire analysis you did and instead think about what they are looking for. Make sure your message is tailored to your audience and keep it to just the key details needed for decision making.
- Learn how to organize and lead effective meetings.
 Make sure you always include an agenda when sending out meeting invites, only invite the key people you need, and, if your attendee list is large, think about splitting the meeting into several meetings to keep discussions efficient. Also, plan how to keep meetings on track have a plan to step in if a conversation goes off topic or if the group is spending too much time on something.

Time management and project planning – This is another crucial soft skill to learn as early as possible. Likely, your university years already started preparing your time management skills but entering a high pace corporate environment while also balancing study time may be even more challenging. There will be routine projects that you can plan for in detail, but there will also be a multitude of ad hoc requests such as someone ask-



Important Soft Skills for Actuaries

ing for help or insights, or unexpected analyses, popping up here and there. You will need to learn how to prioritize work - either on your own or with the help of your supervisor or more experienced colleagues. When working on a task, you need to think about how impactful that work will be and determine how much time you should be spending on it accordingly. Your focus and priority should always be on the most impactful projects. I would also encourage you to find an effective system for organizing your notes, so you can easily reference the information in the future.

Collaboration and networking - Focusing on these two items can help you learn new things faster and speed up your career development. I encourage you to collaborate effectively within your team but also don't be afraid to step out of your comfort zone and collaborate with people outside your department. Always appreciate diversity of thought and keep an open mind for new ideas; you can learn so much from them. Don't be afraid to share your ideas either, as that gives others the opportunity to learn from you. After collaborating with others, don't be afraid to ask for feedback or to provide feedback to others. You can all grow and develop your skills if you embrace a constant growth and improvement mentality. Finally, I encourage you to grow your network both within as well as outside your company. Having a solid network will help you succeed

and achieve greater things throughout your career. The actuarial world is small - you will be surprised how often you run into people

Ways to improve these skills - Like I mentioned earlier, first evaluate where you currently are on these skills. Then each year, create a development plan that, in addition to exams and technical skills, includes the soft skills you want to develop further. Make sure to discuss these plans regularly with your supervisor and see if you both agree on which ones you should focus. Your supervisor can then consider your projects and task assignments with these development items in mind. They may also tell you if there are formal training opportunities at your company for any of the skills you would like to develop. If there aren't, there are some high-quality training courses available at LinkedIn Learning or through online course providers such as Coursera. In addition to formal trainings, I would also encourage you to find peers who are strong in the skills you are looking to develop and ask them to coach you or give you feedback. Don't forget that no matter which skill you are trying to improve, practice is key, so try to practice each as much as possible.

Editor's Note: For more ways to improve your soft skills and other business skills, see CAS President Frank Chang's column in the September/October issue of Actuarial Review. fr

The Candidate Advocate Working Group Mission

The Candidate Advocate Working Group (CAWG) focuses on issues of importance to candidates who are pursuing CAS designations. It serves as a direct point of contact for candidates to engage with the CAS and admissions working groups by sharing their thoughts and feedback. The CAWG also supports candidates' career advancement by advising candidates of resources available to them. The working group utilizes various communications tools, such as the guarterly Future Fellows newsletter, to engage candidates and provide information on topics of importance. Candidates may contact the Candidate Advocate Working Group at CAWG@casact.org. The Casualty Actuarial Society is not responsible for statements or opinions expressed in articles, discussions or letters printed in Future Fellows.

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The Casualty Actuarial Society (CAS) is excited to share the release of four additional reports in the ongoing CAS Research Paper Series on Race & Insurance Pricing. These latest reports dive deeper into the ways actuaries can identify and address potential unintentional bias in property-casualty insurance pricing. Building on the foundational topics covered earlier in the series, these papers offer forward-looking solutions and practical tools to help actuaries quantify and mitigate potential bias. The reports cover a range of critical topics, from global and U.S. regulatory perspectives to methods for detecting bias in data and models, providing valuable insights to advance equity in insurance pricing.



- A Practical Guide to Navigating Fairness in Insurance Pricing
- Regulatory Perspectives on Algorithmic Bias and Unfair Discrimination
- Balancing Risk Assessment and Social Fairness: An Auto Telematics Case Study
- Comparison of Regulatory Framework for Non-Discriminatory Al Usage in Insurance

Additional papers in the series, tentatively titled "Practical Application of Bias Measurement and Mitigation Techniques in Insurance Rating" and "Potential Unintended Impacts of Bias Mitigation on Other Protected Class Dimensions," will be released this fall. **f**