

FUTURE FELLOWS

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Understanding the Appeal Process for CAS Written Exams

John J. McNulty, Candidate Representative to the Candidate Liaison Committee

It is a candidate's worst nightmare. You walk out of the exam feeling uncertain about your performance. After the blackout period, you begin to discuss your answers with friends and colleagues. You realize that, on one particular high point-value question, everyone else has used a different approach and gotten a very different answer. Scores are released; your "5" is a disappointment, but you have to admit it is not a total surprise. You pore over the results of the Examiner's Report as soon as it is released. Just as you feared, there is nothing in it that resembles your approach.

What to do in this situation? Experienced upper-level exam takers will tell you that there is no substitute for getting an early start on your preparation for the next sitting—and if you are being honest with yourself, there were probably several places where you could have picked up the necessary points with a bit more work. In this particular case, however, there is an additional course of action that may be appropriate: the written exam appeal process.

The appeal process for CAS constructed-response test items (i.e., Exams 5-9) gives candidates a way to propose what they believe is an alternative correct solution not found in the Examiner's Report. A complete description of the appeal process is found in the *CAS Syllabus of Basic Education*. (The *Syllabus* also provides a description of the separate appeal process applicable to CAS multiple-choice exams such as MAS-I and -II. In essence, the multiple-choice appeal process is just an administrative check to verify that a candidate's answer sheet was scanned correctly; it will not be covered in detail here.)

First, it is important to clarify the purpose

of the written exam appeal process. **It is not a means to have your paper re-graded.** (Every near-passing paper has already been graded and re-graded several times with an eye to ensuring consistent application of the grading rubric.) Rather, an appeal is a way to put forward an alternative valid solution that the Exam Committee may have overlooked. Often, the appeal will be put forward by a candidate hoping to change his or her grade from a Fail to a Pass, but this is not a strict requirement. In fact, any candidate can submit an appeal, provided they have identified an alternative solution and are prepared to provide detailed reasoning in support of that claim. From the Syllabus: "If the candidate believes that there is a correct solution that is not contained in the Examiner's Report, the candidate must **provide this alternative solution and specific reasoning in support of this claim** with their appeal."

Successful appeals often have the common characteristic of bringing new information to light. A December 2008 *Future Fellows* article by former Exam Committee Chair Arlie J. Proctor gives some examples of the format a valid alternative answer might take:

- *State A published revised regulations after the Syllabus was printed and the new regulations indicate that the answer should be...*
- *Joe Actuary has a Proceedings paper in which he outlines a different method for solving this problem. Joe's paper has the following solution...*
- *My company has a procedure for calculating the indication that includes the following methods not covered on the syllabus...*
- *Question #Y was deemed defective, but I*

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Lessons Learned from the Crash Course in Vehicle Technology and Driverless Cars

Elizabeth End, FCAS

It is really hard to intentionally drive into the back of a car (or a contraption made to look like the back of a car that costs a couple hundred thousand dollars). I know from personal experience because I tried to do exactly that in a Subaru with automatic emergency braking. I failed. I was nervous and started braking before the car could do it for me. Although I am not a good test driver, I'd like to think that my hesitation to run into another vehicle indicates that I am a good real-life driver. I consider myself fortunate to have had this experience that stemmed from attending the CAS and IIHS/HLDI (Insurance Institute for Highway Safety and Highway Loss Data Institute) Seminar: Crash Course in Vehicle Technology and Driverless Cars. The seminar was a great mix of hands-on opportunities and interesting lectures and discussions. Here are a few things that I discovered while I was there.

Setting the Stage for the Crash

Crash tests conducted at IIHS/HLDI are somewhat like dinosaur attacks (as portrayed by the *Jurassic Park* movies.) You are probably scratching your head and wondering why I am making this claim. But picture this: There is an enclosed area with bright floodlights pouring down on it. In the middle of the area is a white goat, innocently awaiting its fate. The goat stands a bit nervously, while a crowd of onlookers talks in hushed tones and stares down from overhead observation decks. All of a sudden, there is a jolting noise; a mechanical door starts to open from one end of the enclosure, and the goat is suddenly wide-eyed. Before the goat can bleat, a dinosaur charges from its now-opened cage and attacks the goat. The resulting sounds are terrible, and once it is over, there is evidence of the destruction everywhere.

If you swap out the goat for a Volkswagen Atlas and the dinosaur for a Ford F-150, that's basically what I witnessed at the seminar. We knew we were going to see two cars involved in a crash, so it was surprising that we only saw the Atlas, the victim vehicle, when we stepped into the testing area. The attacking vehicle was hidden from view until we heard the clicks of the garage door behind us raising. Although the Ford F-150 was only going 37 miles per hour, it seemed like it was much faster. The entire crash happened so quickly, and the noise of the impact was very loud and disturbing. Fortunately, all this destruction is for a good cause. The team at IIHS/HLDI will use this crash to help rate the Volkswagen Atlas's crashworthiness, and those ratings will influence both carmakers and car shoppers, hopefully encouraging additional safety enhancements

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Top: A Subaru XV applies automatic emergency braking (AEB) to stop a seminar attendee from intentionally driving into the back of a dummy, target vehicle. Middle: Seminar attendees gather around a Tesla Model 3 while hearing about the hands-on testing opportunities available to them on IIHS/HLDI's test track. Bottom: Taking a test drive.

Lessons Learned from the Crash Course

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and safer vehicles on the roads.

Check Your Car's Safety Rating

Another eye-opening lesson was that everyone should use the IIHS/HLDI safety ratings when shopping for a car because not all cars and not all car manufacturers are alike! (Want to know how your car performs in the crash tests? Check out [iihs.org/iihs/ratings](https://www.iihs.org/iihs/ratings).)

IIHS/HLDI has some very neat displays where they compare two similar vehicles that have been put through the same crash test. It is astonishing to see how cars that look so alike can be so different on a safety basis. In an example that compared minivans, you could see how the driver seat and surrounding area was largely intact with one minivan, while the other was compacted and crumbled.

The IIHS/HLDI staff told us how useful the crash tests and displays are when communicating with car manufacturers. Upon hearing that their vehicle did not do well in a crash test, some manufacturers might push back and say that their car can't be improved. But when they see that a competitor has built a car that successfully passes the test, they should be motivated to improve their vehicle to handle the test better and be safer for the occupants. Of course, not all manufacturers will accept the challenge of improving their vehicle to the degree necessary or in a timely manner. It is up to us as consumers to let manufacturers know that we want safe vehicles — and the best way to let them know is to not spend money purchasing unsafe vehicles. If our dollars demand safety, safety will become more and more of a priority for the car manufacturers.

Driver Error Persists Despite Safety Features

Vehicles are more crash-worthy than they have ever been, but there are still many vehicle-related deaths due to our bad decisions that continue to put us at risk. Matt Moore, senior vice president of HLDI, led a session discussing some of the changing legislation in the United States that puts drivers more at risk on the roads. Many states have legalized marijuana, and those states have a higher frequency of car accidents than surrounding states that have not legalized it. The law requiring motorcyclists to wear helmets was repealed in Michigan in 2012. Speed limits continue to increase on highways, guaranteeing increases in fatalities.

We humans obviously find some amount of risk associated with motor vehicle travel acceptable, but as legislation comes up in our states, we need to think about the consequences of the proposed changes. To learn more about HLDI's involvement with highway safety legislation and to review the laws and regulations for your state, visit [iihs.org/iihs/topics#statelaws](https://www.iihs.org/iihs/topics#statelaws).

The CAS and IIHS/HLDI will be offering this seminar again in 2020, so I highly recommend that you mark your calendar and try to secure a spot when the registration opens. Who knows what fun, advanced vehicle technologies you might get to test at that time? I hope you'll do a better job of testing the technology than I did. [!\[\]\(4fe57c3593bf1b21d272ae7ac8dfaf77_img.jpg\)](#)



Top: Watching and waiting.

Middle: The crash aftermath.

Bottom: A show of hands at the seminar.

Setting the Bar for the Minimally Qualified Candidate

Sarah Manuel, ACAS, MAAA

One of the things I like most about the actuarial profession is how collegial it is. Actuaries study together and try to help each other, and I like to think that that's partially because of the exam process. Since exams aren't graded on a curve, we know it doesn't hurt us if our colleagues do well on an exam (and it doesn't help us if they do poorly, either). The only person we really have to beat on an exam is the Minimally Qualified Candidate. The Minimally Qualified Candidate (MQC, for short) isn't a real person — it represents what a theoretical person who's *just* qualified to pass would be able to do, and it's used to set the pass mark. I talked to one of the Exam Committee's General Officers to figure out what goes into determining this MQC standard for each exam, and found out that it's more complicated than you may think.

Descriptions of what the MQC should understand and be able to do under exam conditions — we'll call these MQC Narratives — are written for each knowledge statement and learning objective. MQC Narratives are based on what actuaries do in practice. For example, the standard may be higher for doing a Bornhuetter-Ferguson problem than for a Cape Cod problem, since the BF method is more commonly used than the Cape Cod method. (This is my example. Please don't take this as a suggestion to ignore the Cape Cod method — anything on the syllabus is of course totally testable, and I don't want to be responsible for any lost points!) The MQC Narratives are set when material is added to or removed from the syllabus, and they're reviewed and may be tweaked before each sitting of the exam.

Once an exam has been written, a panel (aptly named the Pass Mark Panel) gets together to spend a full day discussing the exam and coming to a consensus on what the pass mark should be for each question. The panel typically consists of one or two General Officers of the Exam Committee, the Part Chair, the Vice Chair of Grading, Vice Chair of Syllabus, a few current graders/writers of the exam, and two pre-testers. The panel members all review the MQC Narratives before the meeting and come with initial estimates of the pass mark by question. The panel then discusses each question, covering things like the level of difficulty, familiarity of the question, complexity of any calculations (including possible calculation error), partial credit recommendations, and how much synthesis the question requires. After all this deliberation, a preliminary pass mark is set.


Then, after we take the exam and hope we earned enough points to pass, the Exam Committee gets to work on grading and finalizing the pass mark. Each question has at least two graders, and in addition to coming to an agreement on the score for each candidate's answer, they have to come to an agreement on what the MQC score should be. They don't see what the Pass Mark Panel said, but they base their estimate on the same MQC Narratives and partial credit guide that the Pass Mark Panel used, only adjusted to reflect any changes the graders might make to the partial credit guide as sometimes graders would expand the partial credit guide to encompass

additional answers as they go through the actual answers submitted. They also take into consideration how leniently (or harshly) they graded answers relative to what the Pass Mark Panel assumed. Any differences between the Pass Mark Panel's initial estimate and the graders' estimate are reconciled, with a single MQC score selected for each question. The sum of those selected MQC scores becomes the tentative pass mark for the exam as a whole, adjusted only in unusual circumstances (such as when an exam is considered to be unusually long).

I was very curious about how candidate responses factored into setting the MQC, so I asked the General Officer about it. He said that candidate responses were often used as a metric for how clearly the exam was written and how comprehensive the initial answer set was, as opposed to being a direct input to the MQC score. So, for example, if most candidates score really well on a question because they all genuinely knew the material well, the MQC would not be adjusted. However, if there's a question where initially the candidate had to give three of four possible answers (and the Pass Mark Panel was only familiar with these four possible answers), but during grading the graders determined that there were 12 possible answers, the MQC may be adjusted since remembering three out of 12 options is easier than remembering three out of four. The percent of people who pass is a similarly used metric. If candidates performed much differently than expected, the committee tries to understand what's really driving it and would discuss the MQC scores for certain questions in greater detail to ensure the selection is reasonable.

I was also curious about what happens when a question is defective. It's most helpful when defective questions are identified before grading (through emails to defective-item@casact.org), because it's much easier to deal with them at the point of grading than if they're identified later in the process. When a question is genuinely defective but in a way that candidates are still able to demonstrate knowledge on the topic, some partial credit is often given to candidates who attempt it and the exam is graded twice — once with the MQC for that question set to zero and no credit given, and once with an MQC set for the problem (with the understanding that the question was at least partially defective) and with partial credit given. If a candidate passes under either scenario, then they pass the exam! This removes any penalty for someone who skipped it, but rewards candidates who demonstrated knowledge of the topic.

Although overall difficulty of an exam can change from sitting to sitting, the Exam Committee does everything it can to make the standard to pass the exam consistent over time using the MQC. More information about the pass mark setting process can be found in the Syllabus section of the CAS website, here: casact.org/admissions/syllabus/index.cfm?fa=exam_grades#grading

So good luck in your studying, and may you be more qualified than the Minimally Qualified Candidate! 

Getting to Know the Employer Advisory Council

Nate Williams, Candidate Representative to the Candidate Liaison Committee

Customer centricity is a hot topic these days. Just look at the rise of behavioral economics (or read about the field in the book, *Misbehaving: The Making of Behavioral Economics*, recently reviewed on the *Future Fellows* Blog). Countless resources have been invested in trying to predict how consumers will act. Companies in every industry are revamping products, services and distribution models with a greater emphasis on the customer experience and what the customer wants. Have you ever thought about all the customers the Casualty Actuarial Society (CAS) serves? As a “leading international organization for credentialing and professional education,” (according to the “About Us” section of the CAS website) one major customer group is the employers of the actuaries the CAS credentials and educates. With such a large and varied group of employers, how does the CAS try to figure out what these customers want? Well, one way is that the CAS asks them.

Formed in 2014, the Employer Advisory Council (EAC) currently consists of 16 actuaries who are leaders from a representative sample of casualty actuary employers. According to Mike Boa, CAE and Chief Communications Officer for the CAS, members of the EAC “reflect the wide diversity of employers of casualty actuaries, from company to consultancy; large to mid to small; U.S. to Canadian to global.” The EAC’s charter poses the Council as a “resource to the CAS in understanding employers’ expectations for their actuarial professionals and assessing CAS performance in delivering on those expectations. The Council provides insights and suggestions to enhance CAS value by reviewing the CAS mission, strategic direction, and programs.” The EAC is usually chaired by the CAS Penultimate Past President. New members are invited by the CAS Employer Outreach Committee, which manages the Council and also facilitates visits by CAS leadership to large employers. Other important participants include the CAS Board Chair, President, and President-Elect. If you’re curious to know who is currently on the EAC, you can find a list of members through the Committee Directory on the CAS website. The current companies represented on the Council and the number of CAS members they employ are shown in the chart at right.

Unlike some committees, which might work together to provide a formal recommendation for, or evaluation of, some proposal or new initiative, the EAC operates more like an open forum. Many topics, such as travel time, are ongoing discussions; however, if there is a specific initiative the CAS wishes to address, the EAC is usually brought on during the early planning stages. Through the EAC, the CAS can gain a better understanding of the relative importance to employers of different aspects of a given proposal. By taking this proactive approach in soliciting employer opinions, more-informed

Company	Number of FCAS/ACAS Employed
Allstate	140
Aon	44
AVIVA Insurance Company of Canada	25
CNA Insurance Companies	96
EY	64
Federated Insurance Companies	15
ISO	55
Madison Consulting Group	6
Milliman	124
Munich Re America	60
Pinnacle	29
State Farm	69
Tokio Marine HCC	16
Travelers	261
Willis Towers Watson	165

decisions are made and better final products are delivered. The members of the EAC benefit, too — and not just from being able to influence CAS decisions. The EAC provides a unique networking opportunity for these actuarial leaders that otherwise wouldn’t exist. And through the dialogue, members are able to exchange ideas and discuss the various ways in which their companies support the CAS and its mission.

The EAC meets quarterly: three times a year through teleconference and once in person. The in-person meeting is usually scheduled around a CAS meeting or seminar. This year, the in-person meeting coincided with the Spring Meeting, right after the first Technology-Based Exam (TBE) sitting. As you can imagine, TBE was high on the agenda during that EAC meeting (and had been for several meetings prior). EAC members adamantly advocated for more rigorous testing of the TBE platform before offering the make-up, and even volunteered their employees to aid in the testing process. This partnership between the CAS and the EAC helped facilitate the coordination of make-up proctors, offering the make-up exam in such a short turnaround time, and increased confidence in the make-up exam distribution channel (which many candidates say offered a much-improved exam experience). While TBE has certainly been a focus in the recent past, the EAC has touched

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The Actuarial Foundation — Math Motivators

Dan Watt, FCAS


As a candidate, your time is precious. Each moment needs to be efficient and effective. For example, if you are going to dedicate any of your valuable time to volunteer efforts, you want to make sure that it is meaningful and lasting. The Actuarial Foundation provides just such an opportunity!

The CAS, SOA, Academy, and other actuarial organizations have teamed up to support The Actuarial Foundation and its efforts to provide free tutoring and mentoring services, financial literacy resources for the public, learning tools for teachers and students, and scholarships to promote lifelong math education and change lives.

One of the best ways for YOU to help is through the Foundation's Math Motivators program. This program relies on professional actuaries and college student volunteers to tutor and mentor inner-city high school students, who do not otherwise have access to such services. Volunteers are asked to donate just an hour each week to help students with assignments and SAT preparation. This small sacrifice of time is enormous in the lives of these students. You will be helping to launch them on a trajectory toward lifelong success by teaching them to love and appreciate math and giving them the self-confidence to endure the trials and challenges along the way. You will be standing as an example during a time in their lives when they

can be so easily influenced in negative ways.

I am currently in my second school year of volunteering for the Math Motivators program. I will be participating as a mentor this time and am looking forward to the opportunity. Last year, I had the pleasure of working with two wonderful freshmen once a week during lunchtime, whom I grew to love and appreciate. There were struggles all year long, but they were very smart and often just needed a confidence boost to get them going. It was simple, but incredibly important. It was amazing to watch their faces light up when a concept finally clicked. Sometimes, they just needed someone to talk to. I could tell they looked forward to our visits, and it would always brighten my week to help them. We laughed a lot, too! The best part of the experience was to watch them progress from students that were frustrated and scared of math to students who were motivated, patient, and willing to help others that were struggling. It was a welcome hour to take a break from regular work and focus on the needs of others. It was a priceless experience.

The Math Motivators program is expanding and in need of volunteers! I encourage you to visit actuarialfoundation.org to learn more. It's a wonderful experience, absolutely worthy of a small investment of your time. 

Understanding the Appeal Process

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answered by making the following assumption/correction and I think my answer should be considered for credit.


- *The model answer(s) indicate that the question-writer wanted to solicit an answer based on article "A". However I believe paper "Q" would have been appropriate based on my interpretation of the question.*

As these examples suggest, when you write an appeal you do not have to reproduce the exact details of your answer on the exam. Your appeal will be considered on its own merits, independently of anything you wrote on the exam. In fact, your original exam paper will not be consulted during the Exam Committee's initial review. Therefore, it is important to write your appeal in such a way that it makes sense as a standalone document. Only if the Exam Committee finds your appeal valid will your original exam paper be reviewed. In that event, **all** papers that could possibly change from Fail to Pass will be reviewed and, if necessary, re-graded.

To put this in perspective, keep in mind that most appeals are unsuccessful, either because they do not provide the required alternative solution and specific supporting reasoning, or because they bring up points that were already considered by the graders.

As the syllabus makes clear, the decision of the Exam Committee Chair regarding these matters is final. And even when an appeal is successful, the additional credit may not be sufficient to push a candidate's score above the pass mark. You may, however, find it reassuring to know that the Exam Committee considers the effect of successful appeals on **all** papers that might change from Fail to Pass as a result. Occasionally, a person who did not submit an appeal will have his or her grade changed to a Pass due to someone else's successful appeal.

Finally, please keep in mind that appeals aren't for reporting defective questions — to do that, you can email defective-item@casact.org within the first two weeks after the exam. Also, appeals aren't meant to be a way to give feedback on the question being asked or the material included on the syllabus — for that, the exam survey is your best bet.

Based on this information, you are now equipped to decide if an appeal is appropriate in your particular case. Appeals can be sent to the CAS Office via mail, fax, or email at appeals@casact.org, and may be submitted up to two weeks after the publication of the Examiner's Report. Good luck on all your future exams! 

Getting to Know the Employer Advisory Council

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on many other areas, too. Such topics include diversity in the actuarial profession, university engagement, Basic Education strategy, continuing education policies, actuarial research, cybersecurity and autonomous vehicles, as well as desired skills for actuaries to possess both now and in the future, just to name a few. Many of these issues get at the heart of the actuarial profession, and the CAS involving the EAC in these discussions indicates how valuable the CAS finds the opinions of the members and the companies they represent.

It is worth noting that the Society of Actuaries (SOA) also has a similar employer advisory group. The fact that such groups exist in both organizations underlies a common commitment to serving their customers, as well as a common acknowledgment of the important role employers can play in shaping the actuarial profession. **f**

Resources & Reminders

Use the CAS website for the following resource tools:

- CAS *Syllabus of Basic Education* and updates
- “Verify Candidate Exam Status” to confirm that joint exams and VEE credits are properly recorded
- “Looking at the Exam Process” series
- Feedback button to the Candidate Liaison Committee
- Feedback button to the Examination Committee
- CAS Regional Affiliates news

Candidate Liaison Committee Mission

The Candidate Liaison Committee communicates with CAS candidates, collectively and individually, who are taking CAS examinations. The committee informs candidates as to appropriate courses of action available to them. Through periodic communication, this committee informs candidates of results of examination administrations, actions taken on complaints received regarding examination questions and reasons for syllabus and examination changes being implemented. Communication encompasses existing policies and procedures as well as changes being considered. The committee should advise the CAS and its committees of the interests of the candidates regarding matters that come before the CAS and its committees. Candidates may contact the Candidate Liaison Committee at the CAS office address. The Casualty Actuarial Society is not responsible for statements or opinions expressed in the articles, discussions or letters printed in *Future Fellows*.

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EMAIL STUDY GROUPS

Email study groups are available for candidates preparing for CAS examinations. Information about each study group list is available on each exams syllabi landing page.

STUDY AIDS AND SEMINARS

Information on study aids and seminars is provided only as a convenience to CAS candidates. The CAS takes no responsibility for the accuracy or quality of the study aids and seminar announcements attached to this notice.

Please note that the Examination Committee expects candidates to read the material cited in the *Syllabus* and to use other material as a complement to the primary sources rather than a substitution for them. 

Actex Learning/Mad River Books
Exams 1, 2, 3F, MAS-I, MAS-II, 5, 6, 7, 8, 9 & VEE

The Actuarial Bookstore
Exams 1, 2, 3F, MAS-I, MAS-II, 5, 6, 7, 8, 9 & VEE

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