

# MCAT Information and Strategy guide + CARS Troubleshooting Guide

Written By: Chandran Venkatachalam  
MCAT Education Researcher and Tutor

Contact: [mcatsavior@gmail.com](mailto:mcatsavior@gmail.com)

---

## Quick Preface (Please read this)

Hello! I'm Chandran, the writer and creator of this guide and I just wanted to give you a quick background on this guide and instructions on how to use it since I have no idea whether you got this from a friend with no idea what it is or after a seminar with me.

I was a student who studied his way from a 480 to a 518 and I realized that there are many strategies and methods that were just not available in either common test prep literature or pre-med circles so I conducted hundreds of hours of research on MCAT education. This guide is written with the results of that research and my own experience tutoring many students to success.

I originally wrote this document as the Official MCAT guide for the University of Miami so I have made some edits so that everyone can use it. The guide has two parts. The main guide which has info on when to take the exam, what courses to take, how to study, and use third party as well as AAMC materials is Sections 1-6. Section 7 is purely a quick troubleshooter for the CARS section since that is a pain for many, many students I kept it slightly separate for easy access. Be sure to read the guide linearly and just skip parts as needed since information you may want may be inside a subheading that you didn't notice from the table of contents.

Also, this guide was built to be free and help as many as possible so feel free to share it with whoever needs it.

While you don't need my help, if you read this and like my teaching style I do offer tutoring starting at 10\$ for the first hour and 25\$ for each hour after.

I keep the rate very low on purpose because I want every student to be able to afford professional level tutoring and succeed on this exam. If your interested please email me at: [mcatsavior@gmail.com](mailto:mcatsavior@gmail.com)

I wish you all the best of luck in your MCAT Endeavors!!!!

**(Note\* Multiple file conversions have shifted the page numbers. Please use the section headings and section numbers to locate the desired information)**

## **Table of contents**

Table of Contents.....	1
Common Acronyms.....	2
1.0 Introduction.....	3
0.1 Structure and Table of Contents.....	4
1.0 Selecting a Test Date .....	5
2.0 MCAT Content .....	7
2.1 What Should I know .....	7
2.2 Planning Undergraduate Classes for MCAT Success .....	9
2.3 Learning Content for the Exam .....	10
2.4 How to Study effectively .....	11
2.5 Special Comments about Psychology/Sociology Content.....	14
3.0 All about Practice Tests .....	15
3.1 Introduction.....	16
3.2 Addressing the Validity of Third Party Test Scores.....	16
3.3 How to Use Third Parties Effectively.....	18
3.4 Scheduling Practice Tests.....	19
3.5 Special Note about Reviewing the Tests.....	20
4.0 All About AAMC.....	23
4.1 Introduction.....	23
4.2 Available AAMC Material.....	23
4.3 Using AAMC's Tests.....	24

5.0 Concluding Comments.....	26
6.0 Appendix.....	27
7.0 CARS Guide.....	33

### **Most Common Acronyms**

AAMC- Association of American Medical Colleges

C/P- Chemical and Physical Foundations (Section 1 of MCAT)

CARS- Critical Analysis and Reasoning Skills

B/B- Biological and Biochemical Foundations

P/S- Psychological and Social Foundations

EK- Exam Krackers

MCATSAVIOR

## **Section 0: Introduction**

Unless you are a pre-dent student who accidentally picked up the wrong guide in the Prehealth office chances are you want to take the MCAT. If so, great! You are about to embark on a huge adventure that is often regarded with much trepidation. We want to change that. There is just so much information and options regarding this exam that even choosing a study plan becomes a headache itself. “When should I start studying?” “What prep course is the best?” “What is AAMC? These are just some of the questions that will be addressed in this guide.

So why should you read this guide? Well it is free. In addition to that, this guide was created by combining the knowledge and advice of many students who scored 90<sup>th</sup> percentile and above. The focus of this guide is to systematically break down and explain the MCAT from start to finish from a student’s viewpoint. The guide discusses: planning your test date, creating a study plan, and finding the most relevant information.

The purpose of this guide is to give you a very comprehensive view of all the details required for success on this test and explain them in a way anyone can understand. The nitty gritty details, the shortcuts high scorers use, reviews of different test prep companies, and even the uncommonly used resources that may net you more points, all of these are discussed within this packet.

**Author’s Note:** I decided to write this guide because I was once in your shoes and I struggled to do well on this exam but after nearly 1000 hours of work I finally achieved a 97<sup>th</sup> percentile score. Along the way I realized that there is so much information that is hidden and not commonly discussed in the premed world that if this info was brought to light other premed students would greatly benefit (and have an easier time scoring high). In order to share all that knowledge this guide was born. This is not a guide on “How to get a 528 while blindfolded and eating cereal” nor is it written in a “I did this to succeed so you should too” type of format. The focus of this guide is to explain the WHY instead of just the what. By giving students options on how they can tackle a problem and exposing the inner workings of the test I believe that this guide can give them the ability to take this knowledge and create a plan to tackle the MCAT that is both highly effective and uniquely tailored to fit their own lives.

So I hope you will give this guide a chance and read it from start to finish and get one step closer to your dreams of acing the MCAT.

Best of luck,

Chandran Venkatachalam

Author and compiler

## **0.1 Basic Structure of the Guide**

The guide is setup in a chronological order from a student's perspective. In a nutshell we will discuss when to plan your MCAT date , what to study, how the test is constructed, what resources are available for prep, how to use third parties tests effectively, and commonly unused strategies and resources that will benefit you.

So how do you use this guide? Well first thing is to read it thoroughly and think about what strategies work for you. During most of the sections there will be large parts of the guide devoted to explaining all the different methods that high scorers use to study and providing their tips on how to succeed. While these sections are by no means an exhaustive compilation of all the high level study methods and tips available, they do serve to give you an idea of ways you can build your own study program. A point I would like to stress is that no one strategy works for everyone and you don't have to use just one of the techniques listed. Feel free to experiment by using whatever ones you like and seeing how they work.

I have mentored many students through the MCAT process and sometimes I'll have a specific suggestion or consideration that I feel should be brought up. So here and there I'll be adding little authors notes to express my own personal opinion based of the experience from my own testing and all the students I've mentored.

\*Authors note: The author's notes are the only section of this guide that contain opinions.  
The rest of the material is based on experience and suggestions from other test takers and AAMC itself. Feel free to read them or disregard them as you wish.

## **Section 1.0: Selecting a Test Date**

The MCAT is an exam that requires a large amount of time, patience and planning. The best way to succeed is to create a detailed and specific study schedule. But it's impossible to create such a schedule without knowing where the end is. This is because everyone learns differently and to fully adapt a schedule to an individual's needs it's important to know how much total time one has. In addition, the timing of the test date not only effects how much time students have to study for the exam, but also their overall timing for the application cycle. The importance of picking the optimal test date that works for you and your plans cannot be overstated. The focus of this section of the guide will explain when students commonly take the exam and examine how these test dates affect their ability to study and apply to medical school.

The MCAT is currently offered multiple times a year and there is usually multiple testings each month from January to September (the MCAT is NOT offered from October to December). There are usually main time periods that students select to take their test and we will now discuss each in turn to highlight their advantages and disadvantages so readers can see which study schedule they would prefer to select.

- **Studying during spring** (test dates fall in second half of spring semester January, March, April, May, June)
  - Application cycle considerations: Some premed students who are applying without the intent of taking a gap year prefer to take their MCAT before the end of junior year. If testing during the school year it is preferable to take the exam before July. Since med school applications are available for submission starting early June it is preferred that students complete their exam, the latest, within a month or two after the June 1<sup>st</sup> application opening. If students feel as if they may need to take it twice they can choose to take the first exam earlier in the semester and the latter during the summer. We recommend that students do not attempt the MCAT unless thoroughly prepared to do so which can often mean setting a date after the last day of the spring semester in their junior year.
  - Studying schedule considerations: Students who choose to study over the school year have to split time between MCAT studying and normal school work which



can become very stressful. In order to alleviate this problem many students usually schedule a much more relaxing class schedule during the semester they know they will be studying for MCAT. Since students have less available time to study for the MCAT, study schedules are usually longer and involve doing a smaller amount of work each day over a longer period of time.

- **Studying during the summer** (test dates in late June, July, and August)
  - Application cycle considerations: If there is no intent to take a gap year premed students should begin studying during the summer of their sophomore year and take it right before junior year, if they have completed all the required courses. Juniors who plan on taking a gap year have more time to consider when to take the test. We recommend that students taking the MCAT do so within six months after taking the last required course. Later than one year not recommended.

\*Authors note: Students who are aiming for extremely high scores or want to make attempts at 90<sup>th</sup> percentile and above should strongly consider summer studying blocks. One thing to take into account is each point gained takes an increasing amount of time to achieve. For example if 510-511 took 10 hours 511-512 would take 15. Past 90<sup>th</sup> percentile the time cost of each point increases drastically and only summer study blocks have enough available time to accommodate the increase in difficulty.

### **Studying during fall** (January testing date)

- Application cycle considerations: For juniors taking the MCAT in January there is no delay for their application and they have plenty of time to retake before application submission in June. Seniors taking in January have the same advantage as juniors.
- Study plan considerations: Students choosing to take the exam in January often complete the majority of their studying throughout the fall semester and then reserve their winter break time for a large amount of studying and take the test soon thereafter. It gives a fair balance of chances to retake the exam combined with time to study.

\*Authors note: In my experience, the most optimal time to take the exam would probably be the summer of sophomore year. Students have a lot of study time and plenty of time to retake if needed.



There are advantages and disadvantages of taking the MCAT during each of these cycles. Choosing which one is the best option for you can be slightly daunting so make sure you take some time to do so. When you take the test is as important as how you study for it.

\*Authors note: It is difficult to say which test dates are best. The key for me was to have a desired score in mind prior to the exam and creating a study strategy around that score. From there it became easy for me to select plans that work best. This was highly beneficial to my success.

If you are having trouble deciding on what date to choose reach out to an adviser in the prehealth office for assistance with the process. Remember there is no correct answer, the best answer is always the one that is most suited to your individual time constraints and goals as a student. The specifics details of scheduling study time will not be discussed in this guide because it is a task best left to each student. How to split up their own time and how to distribute it on a day to day basis is something that has to be organized by an individual for the study plan to be truly beneficial. Fortunately, we do address what content students do need to study and all of that material is contained within the next section.

\*Authors note: Be wary of online guides or posts that promise certain scores or results and then provide a specific study schedule. Their plan was most likely not made with you in mind and may not help. Be sure to carefully consider before choosing which study schedule works best for you.

## **Section 2.0: MCAT Content**

### **2.1 What should I know?**

Now that you've decided on an appropriate test date it's now time to discuss what you actually have to study. All the material that you need to know for the MCAT is typically referred to as the tests content. Your knowledge of content will be the most significant factor in determining your score on test day. So before we go into a discussion of everything you need to know we need to do some groundwork about the test itself. From there we are going to move on to how to best plan your classes to learn the MCAT material and how to use the content books effectively.

#### **Basic structure of the exam**

The MCAT is a 7 hour and 30 minute exam that is split up into 4 different 1.5 hour sections (the remaining time is used for your breaks). The sections are always in the same order and follow as such:

- Section 1 Chemical and Physical Foundations of Biological Systems(C/P)
  - AAMC content description: First-semester biochemistry 25%, Introductory biology 5%, General chemistry, 30% Organic chemistry 15%, Introductory physics 25%.
  - Time: 135 minutes. Questions: 59(44 passage based and 15 discrete questions)
  - Typically thought of as the “chemistry and physics” section

\*Authors note: This section has many calculations but calculators are not allowed so be sure to train your mental math skills.

- Section 2 Critical Analysis and Reasoning Skills(CARS)
  - AAMC content description: Foundations of Comprehension 30%, Reasoning Within the Text 30%, Reasoning Beyond the Text 40%.
  - Time: 130 minutes, Questions: 53 all passage based
  - Typically thought of as the reading comprehension section
- Section 3 Biological and Biochemical Foundations of living Systems(B/B)
  - AAMC content description: First-semester biochemistry 25%, Introductory biology 65%, General chemistry 5%, Organic chemistry 5%.
  - Time: 135 minutes. Questions: 59(44 passage based and 15 discrete questions)
  - Typically thought of as the “Biology and Biochem” section
- Section 4 Psychological, Social, and Biological Foundations of Behavior(P/S)
  - AAMC content description: Introductory psychology 65%, Introductory sociology 30%, Introductory biology 5%.
  - Time: 135 minutes. Questions: 59 (44 passage based and 15 discrete questions)
  - Typically thought of as the “Psychology and sociology ” section

So as you can see here each of the 4 sections tests various topics to different degrees of difficulty. C/P and B/B have some overlap with regards with what topics can be tested where, but CARS and P/S are very distinct. Each of these sections is going to involve reading a passage and then answering the subsequent questions. Sections 1,3, and 4 also have discrete questions. These are questions that show up and are independent of any passage, meaning they don’t have to be related to any set of themes. As a result, discrete questions can test you on any content topic within the range of subjects that section covers. Discrete questions are separated from passage based questions and are explicitly denoted that they are “discrete” by AAMC.

\*Authors note: While AAMC may officially say that there is only 15 discrete questions in sections 1,3,and 4 the number is actually much higher. Questions frequently show up inside passage based question sets that have little to no relation to the passage. These questions known as “pseudo-discretes” are really just discrete questions on various topics that are hiding among passage based questions. Don’t be surprised if you encounter these and answer them as you would any normal discrete question.

So from the general overview of the exam it’s clear that there are many subjects to learn content wise. So now we will begin addressing how to effectively learn all that content. Leading us to our first step:

## 2.2 Planning Undergraduate Classes for MCAT Success

Some of you may be confused as to why your undergraduate classes are being discussed in an MCAT content review. The main reason behind this is that students generally prefer to review material for the MCAT instead of learn it for the first time. Therefore it is important to discuss what undergraduate courses are the most important for learning the material you’ll later need to review for the MCAT.

- Basic medical school course requirements:

Biology (two semesters), Physics 1 and 2, Biochemistry, Intro Psychology course, Intro Sociology course, Chemistry 1 and 2, and Organic chemistry 1 and 2

As we can see here most of the courses needed for MCAT typically line up with the common premed requirements so students assume they should just fill out the prerequisites before testing. This is a good strategy but it is important to note that the content in some courses will not be as significantly covered on the MCAT as others. Below are the suggestions from high scorers regarding about which courses they encountered with significance on the test.

- Courses that occupy lower importance for the test:

- **Biology Evolution and Biodiversity topics**- are not commonly tested and only a few of the overall topics from the course are even listed as possible MCAT material. Though important for medical school admissions, very little content in this course is listed by AAMC as possible topics on the MCAT.
- **Organic Chemistry 2**- Much of these topics are not officially listed in AAMC’s topic guide and organic chem as a whole has a smaller presence on the test. Many select to just learn any unlearned orgo material from the review books and take the course after the test.
- **Physics 2**- Many believe this course is good to take if you have the time, but by no means absolutely necessary. Physics is usually tested in a very basic format on exam

day and topics can easily be learned from review books. Mastering Physics 1 is highly recommended.

- *Courses that occupy high importance for the test :*

- **Biochemistry**- most high scorers agree that biochemistry is the single most important subject for the exam. This is due to its large presence on both C/P and B/B as well as the large amount of material it covers. Highly recommended that a biochemistry course is taken before the test.
- **Human anatomy and physiology**- while this course is not a standard premed requirement most high scores strongly believe that taking these courses will aid on the MCAT. The reason for this is that almost half of AAMC's "Biology" material is actually human anatomy and physiology. Students who have taken biology in school may have a different idea of what AAMC's "Biology" may mean but don't be misled. Taking an anatomy course is just as important as a physics or chemistry since human biology (anatomy) takes up a significant portion of B/B and can show up in C/P as well. Of course if you are unable to take this course before testing it's not the end of the road, there will just be more new content to learn during test studying.

Author's notes: From this quick overview we can see that the important courses are a little different from what is commonly believed. If one has enough time to take all the courses before test day that is a good option. For many though it may be harder to finish all of the above courses before testing and in that case they should consider moving some of the lesser importance courses (Orgo 2, Bio evolution and diversity, Physics 2) to an alternative semester and try to slot the more important courses into their schedules before they test. I would recommend taking the MCAT soon after taking biochemistry.

## 2.3 Learning Content for the exam

Let's talk about reviewing content for the exam. AAMC released a document called "AAMC content outline" (you can find it by googling "AAMC content outline") its free and highly recommended. In the document AAMC gives a general review of each section and organizes each section by content area and details all the topics and material that could be asked. For example in the B/B portion of the Content Outline AAMC will state "Amino acids" as a heading and under it will contain bullet points for all the material you should know about amino acids such as "Absolute configuration at the  $\alpha$  position, Amino acids as dipolar ions, acidic or basic etc".

Author's notes: To review for the MCAT all you have to do is pick up one of these content outlines and review each bullet point. By this time you will probably become used to seeing all your friends carrying around stacks of prep books and you may be wondering what is in them.

Well the secret to those prep books is that they were all written based of AAMC's content outline. The content in them isn't arbitrarily decided by the prep company itself but rather just based on what AAMC said they would test. So in essence, the most effective way to study for this exam would be to pick up a set of content books and learn them thoroughly.

Choosing where to purchase your books for content can be tedious. Do note all prep companies write their review books based off AAMC's outline and should cover the material needed. Look for prep books that are written for the **post** 2015 exam and not the pre 2015 exam.

The two problems that students need to be wary of when reading books from all these different companies is *lack of information* and *excess of information*. The easiest way for a student to check both of these is to have the AAMC outline with them when reading chapters from their prep books and periodically check the material in the book with the bullet points in AAMC's outline to see if there is less info or more info.

- Less information: If the book has less information than the AAMC outline than it is important to note the points missed and review them.
- More information: If the book has tons of information that AAMC did not mention than it is ok to mark that info as less important than the material that AAMC explicitly outlined. This is because AAMC is more likely to test on the material that they mentioned rather than what the prep company thought would be important to learn.

\*Authors note: From my experience, I have found that the Kaplan books probably are the best for reviewing. There is just enough material to cover the topics in the AAMC outline but not enough to overwhelm students. It also organized completely parallel to the outline so it can be followed quite easily. In addition, the books are really common which means used copies can be bought extremely cheaply. Don't worry about buying the latest edition it doesn't really matter. Examcrackers (EK) books are great too, but tend to leave out details sometimes in their attempt to simplify material. Both are good to use in combination with each other as the easy EK explanations can bolster your understanding when combined with Kaplan's details.

### **How to study content effectively**

So you've settled on a group of content books and are getting ready to study them. Great! At this point some students get confused as to what to do since the MCAT is such a big exam. The secret to learning the content for the MCAT is simple, study in the way that is most effective for you. The content books are essentially just textbooks it's helpful to study for this test just as you would for any other. For some students that might mean notes, for others it involves watching

video lectures of the material, and some like audio recordings. Whatever works best for you is what you should actually do. Your individual study techniques will actually be the ones that are most effective. Below we are going to share some recommendations from high scorers on how they shaped their MCAT studying to best fit their unique style and incorporate what the MCAT asks for.

- ***Timing:*** With regards to timing for the exam most high scorers liked to start studying a few months in advance at minimum. In addition, since individual ability changes the studying start time, its recommended that students first review the content to assess what they do/don't know and from their create a plan that gives them sufficient time to cover everything to the their desired degree of mastery. For example, someone aiming for a 510 will not be learning everything to the same degree that someone aiming for a 518 will and their study schedules should be planned accordingly.

\*Authors note: A general rule for me, when mentoring students for the exam, I recommend about 1 hour per chapter should be the standard time allotment. More than that, I have found, students are usually trying to learn too many details at once. Spending less than an hour will result in essential details being skipped or glossed over. So plan your studytime plan with 1 hour intervals per chapter in your content books and multiply that total number by the amount of times you want to cycle through the material. For example if I had 10 chapters and wanted to review them 3 times the total time would be (10x3=30 hours). Don't worry if the number seems really large at first because as you go through the books you will naturally have less to learn and won't use all of the time you initially thought you would. This initial number is just the best one that gives you a good estimate so you can plan your daily schedules appropriately. If you feel on average you read much slower or faster, adjust the 1 hour allotment as needed to get your new time estimate.

- ***How to study varying subject content effectively-*** A lot of high scorers like to switch up the books that they review on a day by day basis. The reason for this is because, let's say your test is in March and you began studying content in January and started with the General Chemistry book and finished it all the way through. By the time you get to February you would have likely forgotten much of the material. To reduce the impact of the forgetting process you can cycle the books. An example of cycling is, reviewing one chapter from three books one day, and then one chapter from three *different* books the next day. Instead of doing a lot from a single book it's usually preferable to do a little bit from many books so that more of the learned material is fresh when it comes time to review material again or take the test. In addition, not all of the chapters in the books are the same size. For example Organic Chemistry chapters tend to be smaller than Biology chapters. By rearranging the books to have easy chapters mixed with hard ones students can balance their study schedules to make it easier for them.



- ***Reviewing content-*** Students always wonder how many times they need to review the same content. The simple answer is as many times as it takes to fully learn the material within them. The key to saving time and being successful reviewing the books for a second or third round is that students should be keenly aware of what they know and what they don't know. When reviewing gauge your knowledge threshold. If students are very familiar with certain material there is no reason to relearn it again, instead they should focus on the material that they don't know. This will save a lot of time and allow students to review more material overall.

\*Authors note: Reviewing is unavoidable unless you have a perfect memory. Some chapters you can read twice and know everything while others will require more time. The chapters that are considered difficult and those considered easier vary by student. The easiest way to find the hard content is to review the AAMC outline and try to recall all the information for each of the bullet points. For content you understand well you would have mastered and the materials that require more attention will become more apparent. Then it's just a matter of seeing where in the content outline you're having difficulty and finding the matching info in the prep books and review it.

- ***Depth of material required-*** Mastering the content is essential for performing well on the exam. There is an equal share of minute detailed questions as there are broader theory questions addressed by AAMC. Being prepared is key! The depth of knowledge required for each section varies wildly. (1) In the C/P section there is much content that AAMC could test you on. As a result they tend to ask somewhat less in depth questions which have more to do with having memorized simple facts, like equations, than knowing the absolute specifics and applications of theories. The P/S section works similar to the C/P section in which the topics covered are just so broad and expansive that its more necessary to know a little bit about many concepts vs. a lot about only a few. On the other hand B/B has much fewer concepts that can be testable and therefore the questions in this section can get quite specific and it's worth studying this material more in depth. CARS isn't mentioned because it provides all the information you need.

\*Authors note: You might be wondering what "depth" is. Depth is just the level of details that you are planning on learning. For example when learning about the heart you would first learn about the chambers, and then go deeper to learn about the ventricles, and from there the specific anatomic names. As you go down to increasingly tinier, more specific details the depth of your understanding increases. One way to increase the depth of your understanding is to build a framework of knowledge when you cycle through your books. On your first review, you may only understand the basic concepts of a subject, but on the next review, you add more details within that basic concept. The more in-depth your review, the more detailed will be your understanding. By organizing all your knowledge in a framework that starts from learning the basics, to the more complex details, you can



have an easier time retaining larger amounts of information that you have to learn for this exam and keep it organized.

- ***Content Importance:*** What content matters most? The MCAT can test content from various sources. Thankfully there is a way to determine what content has more relative worth compared to other content.

The methodology to determine this worth involves evaluating how interconnected a certain concept is with other concepts. AAMC actually has so much info to test that the only way that they can successfully test students on a large amount of content, is to test topics that are highly connected to each other. **For example**, if AAMC makes an entire passage on slit diffraction they are at a loss because there is only a few ways to create questions with slit diffraction and even less ways to tie them in to other associated questions. Now let's pretend they created a passage on fluid pressure involving the blood system. From here they could ask physics questions about fluids, biochem questions about the blood-oxygen curve, biology questions about cardiovascular anatomy or chem questions about acids and bases. As we see in the example shown, a content's worth to AAMC is evaluated primarily by the degree that they can interconnect with other topics.

This will help you when deciding how and what to study in depth. If you're looking at two concepts, let's say kinematics and sound, try to think about all the associated questions that can be created by mixing kinematics and sound with other topics. If you're looking at kinematics there aren't that many connections so it might not be a topic that needs super in depth study. Now if you were looking at sound you might realize that AAMC could ask questions related to the ear and that opens up a whole new dimension of related anatomy questions. Therefore, in this example it may be better off studying sound in a little more depth. Of course this type of thinking becomes much easier once you have taken a few practice tests but it's an important skill to start thinking about early in your studying as well. When deciding what concepts to study more in depth and which ones to only learn superficially, apply the interconnectedness analysis to evaluate them.

*\*Authors note: A few of the new editions of the prep books sometimes have stars or some other way of denoting what they believe is a "high yield topic". Don't take that as a guarantee and make sure you conduct your own evaluation as to whether the topic mentioned is actually interconnected (good yield) or not.*

## 2.4 Checking content knowledge

By now, you should have been studying the content for a while and have been getting pretty confident, your next question will probably be how do I check if I actually know the content?

The easiest answer would be to take practice tests, but the discussion of those will be covered in the next section so don't worry about them for now. Besides practice tests there are a few good methods for checking your comprehension of content. As mentioned before you can always go through the AAMC outline and use the bullet points to check how much you know about each topic to identify your weak points. If you want to find out your weak areas in a more test like manner it would then be important to do extra practice questions. Many test prep companies offer specific sets of subject specific questions sets that can be bought and used. Most if not all prep companies include section specific practice questions at the end of their chapters. Those questions are great to use and are a good way to check your understanding of the content covered in whatever chapter you have just read. It doesn't matter if these back-of-the book questions mimic AAMC or not because their job is to check your understanding not mimic the test.

\*Authors note: The Kaplan books have 15 questions at the end of each chapter with answers that do a good job of checking understanding. The Examcracker (EK) books not only have section specific questions, but they also have what is called EK 30 minute exams. There is one 30 minute exam per chapter and they are made of chapter specific questions that are placed in a passage like format that more closely mimics a real test. Students like them because you can check content understanding while getting more MCAT like practice at the same time.

The end of chapter questions are useful because it tests your understanding of the material covered in that chapter and makes it easier to mark for review. You can do as many or as little of these questions as you would like depending on what your individual goals dictate.

- ***Additional Materials-*** Assuming you have somehow finished all the available questions or just want other types of questions or maybe more specific ones for a certain subject, there are plenty of resources available.
- - ***Khan Academy-*** The number one resource you should use if you want extra practice with topics and concepts. The questions in their MCAT section are quite good and are free so these can be the first extra resources you turn too. If you are pressed for time or don't like the end of chapter questions it's even recommended that you complete these questions to check your knowledge instead. They have question sets for all the subjects and a good amount of them.
  - ***Prep company section banks/question banks-*** Most prep companies have huge banks of questions that they will sell to you. These are largely the same quality from company to company. Typically these banks have too many questions and for focused review of specific subjects it might be easier to purchase subject workbooks from other companies instead.

- **Subject specific books**- These are books that prep companies release that are filled with questions for a single subject only. They can be helpful, but be sure to read the reviews for whichever book you are attempting to buy and **make sure it was written with the post 2015 MCAT in mind**. The older subject specific books can tend to be less applicable to current standards.

## 2.5 Special comments about Psychology/Sociology (P/S) content

One extremely important point to make before we wrap up our discussion on the content is that there are large chunks of the new P/S content that is not found inside most prep company review books. The reason for this is because AAMC is officially partnered with Khan Academy. Since the resources from their joint venture are free to everyone, all the information within them is fair game for AAMC to test. This is not such a huge problem for C/P and B/B because all the information Khan Academy covers is also found in the prep books so there is almost complete overlap of the covered topics. Unfortunately, that is not the case for P/S material. There is a fair chunk of material that is covered in the Khan Academy videos for P/S that is not mentioned inside most prep company review books. The writing of AAMC in the P/S section of their content outline is quite vague which gives them a lot of leeway when creating questions for that section.

**Author's comments:** In recent years AAMC has been increasing the amount of questions they are asking in P/S that up until now, are primarily found in the Khan Academy material.

To protect themselves from getting blindsided on test day it is advisable for students to both watch and study the videos that Khan Academy have posted in their P/S section of their MCAT webpage. In addition, there are documents created by past MCAT takers that contain all the notes for all the Khan Academy videos. You can also find them by searching for "Khan Academy Psychology sociology document" on Google etc. Be aware that there are two commonly circulated versions of this document online. The first is a 300 page document that contains very detailed notes on each video with included screenshots. There is also condensed version consisting of 100 pages. You can use these documents in addition to your own notes from viewing the videos to succeed when these questions appear on the exam.

**\*Authors note:** Sometimes students are confused as to what material from the P/S Khan documents they should learn. I found it easier to learn from a prep company first and then read the Khan documents after. That way I saved time by only taking notes on concepts I had never seen before and which prevented me from being overwhelmed when deciding what info is important and what not. I found the prep companies review were more beneficial to me because it was easier to learn the content from the text than the videos, which can be a little lax with specific details. I would suggest you use the Khan docs to round out your knowledge base instead of build it up. Whether you use the 300 page or the 100 page document, it's up to you and your own time constraints.

That concludes the content section of this guide. Hopefully the topics we discussed gave you a good idea of how you may want to start studying for this exam. Next we will move on to the second phase of MCAT success which involves using practice tests.

## **Section 3.0: All about Practice tests**

### **3.1 Introduction**

Congrats on making it this far into the guide. Assuming you have a great study plan for the content already it's time to add in the last piece of the puzzle: practice tests. These practice tests are probably the single most irritating part of the MCAT process for most students, but they don't have to be. There are many parts of the practice test that benefit students and to reap all the benefits it's important that students use the practice tests appropriately. In order to do that the focus of this section of the guide will be to explain how to effectively use practice tests for maximum benefit on the exam and all the associated details.

### **3.2 Addressing the Validity of Third Party Test Scores**

Practice tests have a lot of value to premed students but the one thing above all that third party tests (any company that is not AAMC) should not be used for is their score. That's right

**Third party test scores are not statistically significant!!! Don't stress!**

Now given such a statement I'm sure that you would like a thorough explanation. Here is the abridged version for why you shouldn't worry too much about your scores from third parties.

- ***Third party test are not stylistically identical to AAMC:*** This means that questions aren't written the same way AAMC does so they tend to be more confusing or just plain random
- ***Third parties have large amounts of logic questions:*** Logic questions are questions that are asked that have no content basis and are just based of critical thinking using something related to the passage. These logic questions are often confusing and not related to content but they bring down your score. AAMC does not ask logic questions in a similar way so there is no need to worry about getting these wrong.
- ***The content is sectioned off:*** Third parties have odd focus in certain topics on certain tests. For example let's say you take test #3 from a third party and have a ton of questions from Krebs cycle, Glycolysis, and Enzymes. Then you take test #4,5 and 6 and never see any of those topics again. That's because when the writers wrote that test they only chose to focus on certain sections of the material at a time. Sometimes you can miss every question in a passage because it focused on a topic you were less familiar with.

Author's notes: From my experience, AAMC is completely random and although questions follow passage sets the material found in all the passages is much, much more randomized.

- ***The scoring is not coherent between companies-*** For example a relatively common occurrence is someone will get 45/59 on company A's test and receive a 125 but when they get the same amount of questions correct on company B's test they get a 127. These companies don't have a standardized scoring system and due to all those money-back guarantees they would often prefer that you get a lower score on practice tests than the real one.
- ***Consistency in scores is almost non-existent:*** Most students even the very high scorers that have taken many third party tests admit that their scores don't seem to follow any visible pattern. Scores can fluctuate wildly depending on the individual test and the company it was produced by. AAMC practice tests are fairly statistically significant and have high consistency in between takes so they are the only measure I really trust to any degree.

\*Authors note: My study partner got a 521 on the real test and received a 503 on a third party test 4 days before his real one. While this is an extreme case most people even top scorers don't usually report getting more than 510ish on non AAMC practices. Keep this in mind during your practices and don't drive yourself crazy when you get lower scores.

We could fill up even more pages with exactly why third parties are not statistically significant but we are going to end that discussion with the above points. The reason why this guide is taking so much time to impress this point onto you the reader is because, chasing scores on practice tests is fundamentally counterintuitive and is an extremely stressful experience. At one point or another every premed has probably heard the “I got 501 on Company X’s test what do I do?” conversation. These third party scores can create a lot of unnecessary anxiety for premeds because we believe them to be indicative of our performance when in reality that’s not necessarily the case. While it is incredibly difficult to separate our feelings from the score after spending 8 hours taking a practice exam, it is a skill that is extremely important to develop early on. Here is a checklist of things to look for when examining progress on third party tests.

- **Quick checks for third party progress:**

- ***Is your score improving?***- Don’t track the “125” score, since it is a converted score. Track the number correct over total questions. This approach works well for section 1,3,and 4 because you can see if on the whole your generally improving. CARS sections have more variability in this number so it’s ok if your numbers are fluctuating.
- ***What’s a good score?***- Scores over 505 on a third party are considered good. In addition, if your scoring 40-45 correct in every section you’re probably doing well. Scores under 505 or with less than 40 correct in a section can be indicative of problems with your understanding of the content. Again these are very general numbers and will change based on each test but are a good approximation for most third party exams.
- ***You aren’t missing content you missed before:*** Let’s say you missed all of mitosis two tests ago, but you studied and then nailed all the mitosis questions in the most recent test. That type of improvement or lack thereof is what you should look for. We will discuss tracking content problems later on in this section too.

The importance of not taking third party test scores too seriously cannot be overstated. Using the quick checks above see if you are making adequate progress on the score but don’t worry about

them too much because the score you get has little to do with the true value of these third party tests. Most of all do not feel disheartened by low scores, they happen to everyone.

### 3.3 How to Use Third Parties Effectively

Now at this point in the guide you are probably thinking that third party tests are horribly useless. The scores, to a degree, are not indicative of your actual score however the tests themselves have value. Let me explain, the true purpose of these practice tests can be split up into three main categories. Stamina, use of content, and review of weak content areas. We will discuss each of these in turn to explain how they fit into the practice test scheme.

- ***Stamina training-*** This is by far the most overlooked aspect of practice tests that students do not focus on. The test is more than 7 hours long which means that you will get worn out quickly. Taking the MCAT is just like a marathon, practice makes perfect. Many students who do not practice with full length tests in a single day may find it difficult to focus during their actual test. Taking these practice tests in a timed environment in one sitting is the closest you will get to the experience of the real one. Many high scorers know that the more you can focus during the exam the less you slow down through the later sections and the more attention you can give to each individual question, which leads to higher scores overall. Don't discount the role of stamina in your score on test day. The more tests you take, the easier it will become for you to focus all the way through and eventually it will become routine.

\*Authors note: If you are having trouble with stamina or getting through passages on time during test day you may have to train you reading skills. Students spend more than half the test just reading text regardless of what section it is. To train the appropriate reading skills it would be impossible to just read random material. Quite specifically the passages in all the section besides CARS are built using shorthand versions of research papers you commonly read in undergrad. They all usually follow the format of a general experiment being done with confusing acronyms that lead to various results with figures to analyze. The easiest way to improve your comprehension and stamina is to just read standard research articles for biology, physics, and biochem. You can find these online or anywhere and by training to read those quickly while understanding the material, you will be making it easier to read passages when they show up on the exam. As for CARS any densely written prose or composition will do.

- ***Testing your ability to use content:*** The large majority of third party test questions are useful. At this point you may ask "Why shouldn't I just use the AAMC material instead?". Well AAMC material is the gold standard but it's significantly limited in



amount. This means that you don't want to be taking AAMC material until the end of your studying cycle and will want to wait until the last few weeks before your exam to really get into them. The reason for this is that when your knowledge of the content is still incomplete, there is no reason to waste AAMC material to check your knowledge when a third party can do the same job. Since there is so much third party content we don't have to worry about using it up and can keep making attempts as we see fit.

The questions that you have probably completed by now such as back of chapter review sets, section banks, and other review material, will not be the same as the questions you will find on these third party tests. These tests were written in an attempt to closely mimic the real MCAT as much as possible and as a result, the questions you find on these practice tests (we will call them Test-like questions) are more complexed, require passage understanding, and synthesis of the many content topics you were required to know. As a result, they are the best way to assess your knowledge, comprehension and use of the content. Third party tests have the highest amounts of test-like questions available and that's why they are still a valuable resource to use. Many students that have an excellent grasp of the content, sometimes struggle to apply it in a testing situation when time and passage details become a factor. The only way to avoid this gap is by gaining experience on how to best use your knowledge during a test and that experience can easily be gained by practicing with third party exams.

- ***Finding weak spots in your content understanding:*** Third party tests help test takers to find the weak spots, or gaps of knowledge in their understanding of the content. This is very useful. Remember when we said that third parties don't necessarily randomize what info is on what test? That lack of randomization may be horrible for your scores, but it's utterly fantastic for finding out what content areas you are weak in. For example, if you take a practice test and get faced with passages in kinematics, krebs cycle, and acid-base equations and miss a large amount of questions in each of those passages, it becomes clear that you need to go back and review them. Often times the end-of-chapter problems and associated questions aren't challenging enough to simulate a real test day situation. Even if you get those questions correct you may miss questions on those same topics when they show up on a practice test. This is extremely helpful because we can pinpoint which areas are weak and then study those specifically to better prepare for test day. AAMC tests are great for this but there is really only 4 of them currently. This means that the scope of material that they cover is very narrow compared to all the available material they can test on. To fill in these gaps we use third parties to check our understanding. Further details on how to appropriately track missed questions on third party tests will be discussed a little later.

### 3.4 Scheduling Practice Tests

So as you can see third party tests are very valuable resources. Just not for the reasons most students use them. Now that we have introduced you to both the good and bad sides of using third parties, let's discuss how to implement them into your study plan. There is a long standing debate in the premed community about whether one should do content review first and then start doing practice tests later or if they should do both simultaneously. The answer that most high scorers tend to agree on is that people should start taking tests as soon as they are comfortable, but it's strongly recommended to have at least 10 total full length tests completed before test day. Since AAMC has 4 tests, approximately 6 or more third party tests should be taken additionally. Of course, this is a general recommendation. Some students may feel as if they need less and some students may feel as if they need more.

\*Authors note: I don't usually recommend just buying tests from any one single company. Each prep company does things a little differently and when I build testing schedules for students I usually have them switching prep companies every week or so. It's not necessary to have each test you take come from a different company. Just pick three you like and swap out which one you do each week so you can get exposed to a variety of testing styles.

Scheduling one test a week is quite beneficial. It is understandable that those with less time may want to schedule multiple tests in a week, but when the test itself takes up a whole day and reviewing it takes up most of another, it is a significant investment of both effort and time. Be cautious when choosing to go down that route. Assume that the AAMC tests will be clustered towards the final weeks leading up to your tests and schedule all the third parties you want to take before the AAMC tests.

- **When taking your full length practice tests:**
  - *Be sure to time the test* and complete in one sitting (not split amongst several days). If you have trouble sticking to the time limits, you should try taking the test untimed and gradually speeding yourself up until you can do it within the allotted time limit.
  - *Test in a quiet environment* to closely mimic real day conditions
  - *Review* the entire practice test the day after.

\*Authors note: Some people don't have room in their schedules to complete a full length test in one day. It is recommended that you try to finish the whole test in one setting, but if you can't feel free to break it up and take 1 or 2 sections a day. Some third party tests have unlimited tries and some are restricted to a certain number of attempts. It is advised that if you break up the test you should do so for tests that have unlimited trials so that you can check answers for each section right after completion, rather than having to wait until the entire test is finished before submitting to get answers.

### 3.5 Special note about reviewing the tests

The most important part of these practice tests actually comes the day after, when you review them. Like we discussed before, these third party tests are your best chance at discovering where exactly the weaknesses in your content areas lie. And the best way to actually find these weaknesses is a long and very thorough review of the practice tests you completed. Because this step of the testing process is so important we have provided a very detailed explanation on an effective methodology to review and catalog your tests in order to gain the most benefit. The suggested methodology is as follows:

- **Properly reviewing practice tests:**

Step 1. Go through each question. If you got it correct make sure you got it correct on purpose. If you got it correct on purpose, great! Just make sure you skim the answer explanation to see if there was an alternative route that would have been faster to use or a trick that you can learn. If not, move on to step 2.

Step 2. If you got it correct by accidentally (through guessing) or got it wrong, make sure you read the answer explanation. If it is a logic question (question that doesn't involve content) don't worry too much, just read what they believe is the proper reasoning and move on. If it is a content based question, move on to step 3.

Step 3. If the question is not a logic question and involves content it is important that you record the content area you missed in some organizational program such as excel or google sheets. Make 3 columns (for C/P, B/B, and P/S) and then add content areas under these columns as you miss them.

Repeat this process for all the questions in the test. As for CARS, when reviewing it is more important to read the answer explanations and see how your answer lines up with the explanation. There are no explicit content areas to write down, but if you feel like you are missing certain types of questions more than others, make a note to review them later. The next part will explain how to use the data that you will acquire from the practice tests in order to increase your score.

#### **Phase 1:**

Let's say you missed a question about metaphase in the B/B section. Then you would go to the B/B column of your worksheet and instead of putting metaphase you would put "mitosis". The reason that you record the content area instead of the specific content you missed is because of

test probability. The chances of you getting a similar metaphase question just like the one you missed is close to zero. It's much more probable that you'll get another question on something from the content area of "mitosis". That's why in your missed content document it's a smarter move to denote content areas rather than specific points of content that were missed.

This also helps you greatly when you add data from more tests to your document. For example, let's say you review another test and miss a question about anaphase. Now you can go back to the "mitosis" tag in your B/B column and change it to "mitosis\*" (mitosis with an asterisk) to show that you missed another question in this content area. There is no need to make multiple tags for content areas missed. If you miss a prophase question in the C/P section of another test it's fine to just change the tag in the B/B column to "mitosis\*\*" instead of making a brand new tag in the C/P section.

**Author's note:** I believe it is important to keep all the content area misses on one document because it eliminates having multiple tags and keeps everything in one place.

Although this strategy might work well for C/P and B/B you may notice that P/S questions don't necessarily have content areas but are more definition specific. For P/S it's ok to just write down the terms that you didn't know and then go and define them later. Make sure you look through the answer stems to collect all the different terms you didn't know either. As for CARS the review for that is usually more subjective and best left to each individual's preferences rather than an organized document.

## **Phase 2:**

Whereas phase 1 was involved in collecting all the different content areas you missed throughout all the tests you took, phase 2 involves combining them into a document organized by priority and subject. For this part of the review process create a new excel or google sheet and then create columns organized by both subject and difficulty. It should look a little like this.

	Biology	Biochemistry
High		
Medium		
Low		

Of course the real document would be much larger and include many more columns with all the subjects. Then take your content areas from your original document and start slotting

them into the new document. When evaluating the priority of a content area apply this criteria:

- ***How much do I know about the content area?***: If you know very little about the content area then it would be better to place it in a medium or high slot. If you feel comfortable maybe a low slot is fine.
- ***To what degree can this content show up on exam day?***: This is a very hard judgement, but just like we did before, use the ability of the content area to interconnect with other topics as a judge of how likely it is that you will see it on test day. Acids and bases is a very interconnected topic so it would definitely have more priority over electron configuration of atoms even though they are both tags that would fall in the Chemistry column.
- ***How big is the content area?***: The size of content areas varies drastically. Mitosis might only have a few definitions to review within it, but reproduction systems of humans is an enormous topic and would therefore require a greater priority.

Use the above three criterias to determine the relative priority of a certain topic for yourself and place it into the second document you have created. After that's finished you now have a very efficient roadmap of the content that you need to relearn or review.

**Recap:** You have taken multiple tests and upon reviewing them recorded all the content areas you have missed. Next you took all of those misses and created a second document which displays the content you missed by subject and priority. What you are now looking at is a fairly good picture of most of your content weaknesses. Now you can go through this document and do as much content review as possible in order to bolster the parts of your knowledge that may be weaker.

Although this review approach seems tedious, it actually saves you time and effort in the end. That is because you can use the condensed document you have created to dictate your study plan instead of aimlessly studying content at random hoping to learn the content. Especially when it gets closer and closer to test time you will be able to easily tell which content areas are more important to study and which ones require less attention. For this strategy to work well, you do need a good amount of data from multiple practice tests. A general recommendation is for students to take five practice tests at least four weeks prior to the exam is usually preferable. Although the more practice tests you take and analyze the more perfectly this document helps you to identify your weaknesses. So it's worth adding material to this document as your journey continues. Of course, this is just one method of cataloguing your misses to review them for later. If this review method works for you, great! If not, take the important principles from this review and make one that is better suited to your own study goals.

That concludes our discussion of how to properly use third parties to maximize your benefits. As you will notice we didn't discuss which companies may be better/worse which is a common

question asked by most premed student. You'll find discussion on that topic and a list of available exams in the appendix section of the guide.

## **Section 4.0: All About AAMC**

### **4.1 Introduction**

Now the question that everyone is dying to ask, how does AAMC's prep material fit into this whole scheme? AAMC is unquestionably the gold standard for test prep. With regards to what third party tests are more advantageous than others, we have left that discussion for the appendix. For now just know that AAMC test material is the best of the best. Unfortunately, AAMC material is strongly limited. Since March 2018, they currently only have 4 tests available and an assortment of prep material. (From September to the end of December of each year they will likely add another test). The rest of this section will explain AAMC's resources and give you options on how to effectively use them.

### **4.2 Available AAMC Material**

Non-Test Related material (Refers to all AAMC resources that isn't explicitly in a full length test)

- ***AAMC Official Guide:*** Not to be confused with the AAMC Content Outline which is free to students, you have to pay for this resource. The guide contains a run through of what AAMC thinks is important info for students to know and contains tips for students taking the test. It contains 120 questions (30 for each section). Questions can be bought separately (for much cheaper than the guide+questions).
- ***Question bank-*** AAMC's question bank with 240 chemistry questions, 240 CARS questions, 120 physics questions, and 120 chemistry questions, is a good resource if you want extra practice with a mix of passage based and discrete question types.

\*Authors note: The question bank contains 720 questions, but they are all old AAMC material from the pre 2015 era. This means that they tend to be stylistically different from current questions and more discrete based. They are definitely not useless because you can still study the way AAMC asks questions and practice with content. Just don't buy these thinking you're going to get 720 new style questions. They tend to be a bit pricey so I would say these are more for students aiming to get really high scores that want every shred of AAMC material available. If you are just aiming for a regular score I would still recommend the "CARS questions pack #2".

This question pack contains 120 CARS questions that are actually really relevant. You can buy this pack separately so that will save you some money.

- **AAMC flashcards:** These are paper flashcards with 25 questions for each of the 6 subjects. A good all-around buy due to its low price point and question content.

\*Authors note: Unlike some of the question bank sections, there is a lot of newer style questions mixed in here so it is a great buy and generally costs less than \$20.

- **AAMC Section Bank:** The section bank is a set of 100 C/P, 100 B/B, and 100 P/S questions that were written for the post 2015 exam. The questions and passages in this bank are known to be the most difficult in rigor that AAMC has for purchase. It is highly recommended that students practice completing these questions in order to practice for the difficulty they will experience on test day.

\*Authors note: Many people like to take 60 questions from each of the three section banks and create their own “AAMC test”. In order to get a CARS section they sometimes use a CARS section from a third party or 9 passages from CARS question pack two. I always think this is a fantastic idea because taking the high difficulty of the Section bank in a test like format is a very good approximation of how the real test will behave. Students then use the 40 leftover questions in each section as general practice questions to complete.

As you can see AAMC has a fair amount of non-test related products. Buy whichever ones you would like or all of them. It doesn't really ever hurt to do AAMC material since it is written by the test makers. Just make sure that you save them for the weeks immediately preceding your test so that you can get the maximum benefits possible by adapting to AAMC's questions style vs. a third parties.

#### 4.3 Using AAMC's Tests

Premeds dread these AAMC tests for a few reasons. First of which, unlike the third party tests you have been taking up until now, AAMC tests are fairly statistically significant. Of course, no predictive score is perfect. There is plenty of people who score more than their practices tests and many that score less. As a general rule of thumb, people tend to score on the real one in a similar fashion to their AAMC practice scores. If you are looking for a decent predictor of how you will do on test day the AAMC practice tests are your best bet. That being said, let's take a look at what practice tests are available. The authors note that follows the description of each test is based on the experience of many people who have taken these tests, and your actual opinions after taking the practice tests may or may not line up with what is expressed here. The comments are only here to serve as markers so that students can get a good idea of how the



individual practice exams compare to the real one. Hopefully, they can use this information to build a better idea of how the real test will behave.

- **AAMC Sample test:** This is the first test they released. It is indeed a full length test, not just a “sample” of a test.

\*Authors note: The CARS has been noted to be somewhat easier on this than the real test. This test does not give you a numerical score at the end but it does give you percentile ranks by section. You can use the percentiles that AAMC releases on their website to match up your section specific percentile with a scaled score and then add all those scaled scores up to get a composite score.

- **AAMC Full Length 1 (FL1):** AAMC’s first official test. It’s official because it gives you a numerical score at the end.
- **AAMC Full length 2(FL2):** Very similar stylistically to FL1. Just think of it as an alternative edition of FL1.

\*Authors note: FL1 was released in 2016 and FL2 was released in 2017, but they are very close to each other in terms of style and difficulty. Overall, these test should do a good job of giving you an estimate of how the real test will proceed. These tests are also a bit easier than both the section bank and the real test. Be forewarned, don’t get complacent just because you did well on these and underestimate the real one. SPOILER: If you have tons of time left in the C/P section of both these tests be aware that these two C/P sections have a split difficulty. They both have multiple hard passages for the first half and then become quite easy towards the last half. The real test will not split its difficulty and will have a C/P section that is most probably a lot harder. Just be aware of this gap so that again, you don’t underestimate the real one on test day.

- **AAMC Full Length 3(FL3):** AAMC’s latest FL. It was meant for students who were testing in 2018 and is a good deal updated from FL1 and FL2.

\*Authors note: FL3 is probably the closest thing you can find to mimic the real test. It is a good deal harder than FL1 and FL2 and will give you more of a challenge. Don’t worry too much if your scores drop on this test compared to the other FL tests. The FL scoring system doesn’t account for the real curve of an actual test day. That means that any sections that dramatically drop in scores from other tests on this one, may not actually drop by that much on real day. You should conduct a thorough review to investigate any large drops in scores, but don’t let it shake up your performance before test day.

Those 4 full length tests are all that AAMC currently has for students. Many high scorers agree that the AAMC material should always be reserved for the last few weeks leading up to test day so that test takers can get the maximum benefit of the exams right before their actual test day. It would be beneficial to take the most recent FL test closest to your test date and you should schedule the others prior to that test. The gaps in time between AAMC tests would be great times to work on all that extra non test AAMC material as well as hunt down content that is still eluding you.

\*Authors note: Once you start taking AAMC material it's usually not advisable to keep taking third party tests. That is because AAMC asks questions in a very unique manner and adapting to that style takes time. Sometimes when students take too many third party questions during the time up to their real test, their programming for AAMC questions gets replaced with programming for the third parties and this can cause lower practice scores. Try to stick to mainly AAMC material as you get closer to your test date.

We hope this short explanation of the AAMC resources was sufficient for your needs. Please remember these are just suggestions based on the experiences of high scoring Prehealth students

## **Section 5.0: Concluding comments**

Hopefully this guide didn't take you too long to read and gave you some valuable insight. Like I've said before this guide is by no means an exhaustive compilation of everything you could possibly know for this exam. It is meant to inform you of the opinions of students who have previously succeeded on the MCAT and their strategies in doing so. Using this information and your own research I strongly believe that you will be able to create your own personal plan to succeed on this test. If you are looking for a more in depth examination of the practice tests available as well as some more tips and tricks, we have added additional content in the appendix. Congratulations!

Thanks for reading!

P.S- Don't feel pressured to absorb all the information in this guide in a single read through. The tips and strategies discussed can often be complexed but they become easier to understand and implement as you gain experience. Our best advice is to treat this guide as an opinion guide and feel free to refer back to brush up on your knowledge and catch things you may have missed the first time. Happy studying!

## **Section 6.0: Appendix (Author's Notes)**

If you are reading this you have either finished the guide or skipped straight here after hearing that we would be talking about practice tests. Regardless, welcome! A lot of the info mentioned here is highly opinionated and it is advice that comes from myself and the conglomerated opinions of many other high scorers. As a result, we wanted to keep the highly opinionated material away from the more factual nature of the rest of the guide. **The following views are not endorsed nor do they reflect the opinions of the University of Miami Prehealth**

**Department.** Think of it like one super extended authors note. I will be dealing with section in sort of a FAQ style format to address some of the most common problems that premed students face when studying for this exam. The information is going to be a little disorganized, but that's ok. You'll just have to read through most of it to find what you want. Hope it helps!

### ***1. MCAT prep is super expensive how am I going to pay for all of this?***

Regarding content books you can find used booksets pretty easily online. You can purchase books through Ebay or Amazon etc. There is no need to have the latest edition. Just ensure they are written for the post 2015 exam. For AAMC non test content as well as AAMC and third party tests you can split the costs with a friend, or a few friends to maximize usage. Most third party tests and AAMC have multiple attempts (usually 5) and most students usually take each practice test just once. So just take the total cost of all your prep materials and divide by the amount of people you can get together to split them. Using this strategy you'll be able to get a lot more prep for you money.

### ***2. What free resources are there?***

A ton. There is actually a large number of MCAT prep that is available for free. Most of the tests that are available are usually in a half test format. A list of available tests with the percentage samples provided are:

Altius (50% length exams)

GoldStandard (33% length exams)

Kaplan (50% length exams)

NextStep (Offer full length tests for free)

The Princeton Review (Offer full length tests for free)

Regarding free non-test based content your best bet would be to use Khan Academy. They have lots of practice passages and questions that were written for the 2015 exam and will allow you to use them at no cost.

### **3. *How many third party tests are out there?***

A lot. Here is a fairly encompassing list.

Altius Test Prep-10  
Barron's- 2  
The Berkeley Review- 4  
ExamKrackers-4  
Gold Standard-7  
Kaplan-15  
MCAT Cracker-3  
McGraw Hill- 3  
NextStep-10  
The Princeton Review-8

### **4. *Wow that's a lot of practice tests. Which ones should I actually buy?***

That's a great question to ask if you want to start a fight at an AED meeting. In all seriousness, there are way more practice tests on the market than most people will have the time to do before their actual test. Before we get into which ones are more useful let it be noted that I have no info and have heard no info about The Berkeley Review, Altius, and MCAT Cracker. These tests can be good or bad, but I haven't used it. Do a Google search for reviews regarding them if they interest you. That being said, the others are far more popular.

Let's start off with those that were not helpful to me. Both the Barron's and McGraw-Hill tests were limited in my view in terms of passages or questions. I found Princeton Review to have very challenging well written passages, but the questions can be quite convoluted and frustrating. I used the free full length they provide for reading practice, but wouldn't recommend buying these tests. Kaplan tests are one of the most common that premeds buy, I found them to have some weaknesses in sections 1 and 3. In my opinion, sections 2 and 4 are well done, but C/P and B/B are almost entirely made of very short passages followed by groups of discrete questions. The content review is good, but the sections are overall too short and the questions aren't integrated enough with the passage to mimic AAMC. Just something to note if you are using these exams.

Let's talk exams. ExamCrackers (EK) is popular and is usually noted to be pretty good resource with well written passages and questions. Gold standard is also on the same tier as EK with great passages and questions. Finally, Next Step is what is commonly believed to be the most AAMC like test on the market as of now. They contain long exceptionally written passages that are followed by challenging questions that require you to constantly integrate passage and outside knowledge. To me, their sections are probably the closest you can find that mimic the length and difficulty of an actual AAMC exam. Their C/P and B/B sections are probably the best on the market. With regards to CARS and P/S they have good sections for these, but Nextstep's CARS and P/S isn't necessarily better than that of Gold standard, EK, or Kaplan. In sections 2 and 4 they are more or less tied with the other companies, but I found that they really shine with the best sections 1 and 3 available. Be aware that Nextstep tests 6-10 are written much differently from 1-5 and may not be as valuable to students. (The other third parties have good consistency between their different tests for the most part). I would only recommend purchasing and using Nextstep 1-5 for this reason. I believe Nextstep 6 is the hardest C/P section that's on the market. If you have some time to kill and want to try out your skills feel free to give that a go.

Like it was stated in the guide, it will usually be more beneficial to purchase a large variety of tests from different companies and take them all as you study. This way the weaknesses in each test bank vary and may be filled in by other companies and you will be exposed to more variety when training. Nextstep, Goldstandard, Altius, and The Berkeley Review all sell their tests in sets. Meaning you can buy them one at a time, buy a few of them together, or buy the entire set. Tests in this bracket tend to cost 25-35\$. Examcrackers sells each of their tests individually for 50\$ each. Kaplan only sells its tests together and they can cost upwards of a 100\$ or more per test. Make sure you really want the Kaplan tests before purchasing as I found comparable tests at much lower price points.

Don't forget that no matter what third party test you get the scores you receive on them will be inaccurate (as discussed in the Testing Section of this guide). Make sure you use them effectively and review them thoroughly to get the most benefit.

## **Section 7.0 CARS Guide**

### **1.Help! My CARS score is all over the place , what should I do?**

Don't worry this situation happens to a large portion of those studying for MCAT. It is necessary to first point out that you should not heavily rely on third party material for gauging your progress in CARS for several reasons. CARS is naturally a subjective section which requires you to pick the best answer rather than the correct answer. As a result, when third party companies attempt to mimic AAMC's questions style the way the questions are written are heavily influenced by the third party test makers own opinions of what constitutes as the "best answer" for the question. Therefore as you answer CARS questions from different prep companies you may notice that the styles of questions, types of answer choices, and your overall number correct may fluctuate wildly. In addition, the scaled scores for CARS sections on full length tests have a much harsher penalty for missing questions. Meaning that missing only a few questions in CARS can lead to much bigger shifts in the CARS scaled score than missing an equal number of questions in another section. Keep these facts in mind when you encounter third party prep material or test scores that seem to randomly fluctuate. Do not be concerned so much by individual instances in which you scored badly. Instead track your progress over the course of time to see if you are generally improving or not.

### **2.Okay... but how am I supposed to get better at CARS?**

With very effective reviewing and a generous amount of practice. CARS is not an easy section to review due to its subjectivity. When reviewing sections such as C/P, B/B, and P/S you are probably use to merely looking at what is the correct answer jotting it down and moving on. This works for those sections because you know that whatever term, concept, definition etc. that you missed will show up again in a similar format. This repetition does not happen in CARS. In every CARS section you will receive 9 brand new passages on various topics and be asked to synthesize answers to questions using the information contained within those passages. As a result, it is preferable that you review CARS differently from when you review other sections. Since you know that the specific information each CARS question asks won't ever be repeated, you need to have a more foundational based approach. So below I have outlined a shorthand version of reviewing CARS questions that you may have missed in the practice exam.

1. **Question logic-** Review the logic behind the answer choice selection method that is given by the test company in the answer solution and then compare their reasoning to your own. By comparing their reasoning to your own approach you can see where you lacked consideration and then record ways in which you can modify your answering strategy. In particular look at the passage evidence that the answer solution uses and examine both the location of this information in the passage and how it relates to the answer choice. Chances are that the types of questions (tone, author's intent, which is most likely, which of these is best supported etc.) will show up again. Since the strategy for using passage evidence changes slightly by question

type, each time you review a new question make sure you associate certain type of questions with the specific method the answer solution uses to solve it. That way the next time this question type shows up you already have a rough idea of what passage evidence you should be looking for and where it might be.

2. **Comparing answers to each other-** The next step in your review should be to examine the correct answer and compare it against the one you selected. Look for the nuanced ways in which the correct answer is a better choice than yours. Some common answer qualities that put certain choices ahead of others constantly reoccur.

The first is the language of the answer choice. Does the answer contain heavy qualifiers such as “always, never, absolutely, undeniably etc.” or does it have really weak qualifiers such as “maybe, sometimes, in certain cases etc.” These words give an indication of the strength of the answer choice and care should be taken to match the strength of the answer choice with the question as well as the overall boundaries of the passage. If the author states that “fish are ok swimmers” and one of the answer choices for a question states that “fish are the greatest swimmers on earth period” these don’t match in strength. Always be on the lookout for the individual wording of the answer choices themselves to determine their relative relevance to the passage and their relative strength in comparison to the other available answer choices.

The next thing is how well do the answer choices convey the intent of the passage? I have found, the key to doing well on the CARS section is being able to determine which answer is relatively the most correct. A quick rule of thumb to use is to assume all the answers are irrelevant and find the choice that is least relevant. In each question, every answer choice has 3 competitors, so it is very important to learn how to compare the answers to each other. A good criteria you can use for this is to examine how the answers mesh with the intended and stated text of the passage. Even if an answer seems better than the others and answers the question well, if it does not align with the overall flow of the passage it is still wrong. Be careful of answer choices that are convincingly worded and seem highly applicable yet don’t follow the passage. To avoid these traps check which of the answer choices best aligns with the passage.

The final step when comparing answer choices between themselves is to see which ones answer the question the best. In this case, the usual traps are the reverse of the ones that were discussed above. You may find answer choices that are heavily based on the passage evidence, direct quotes from the passage itself, or even ones that have a high match with the overall themes of the passage. But if these answer choices do not answer the question then they are also invalid. The final check I used when selecting an answer is to ensure whether my chosen answer, answers the question to a greater degree than the other choices.



At this point you must be quite confused, all these different ways of comparing answers to each other seem to contradict each other. Just remember there is no hierarchy to the aforementioned answer attributes. Just because a choice follows the question that choice is not instantly better than an answer choice that has mismatched language. Instead of using the aforementioned attributes in a hierarchy, it might be easier to assume that they have close to equal relevancy and your goal is to find the answer choice that has the best overall combination of all the required attributes. **Think of it more like a checklist in which you are looking for which choice has highest number of good traits compared to its fellow choices.** Just remember that the attributes discussed above are by no means an exhaustive list of all the things to look for when examining answer choices but are merely meant to give you a few pointers to initiate your reviewing progress.

3. **Reviewing comprehension of the passage** - CARS reading passages are not the same as reading Harry Potter. The passages are specifically selected to have thick prose, tons of details, questionable topics, and many underlying themes. As a result sometimes students can just simply fail to understand what is being said. This problem is very pronounced in passages that use vague language and jargon, such as philosophy passages. When reviewing CARS passages, make sure you are honest with yourself about whether you missed full understanding of certain parts of the passage or just the entire passage itself. The passages are usually created in such a way that text that comes later builds off understanding of the previous text. So if you are unable to understand certain parts of the passage it may come back to haunt you later when you start to answer questions. If you are having trouble reading passages the first step is to determine the source of the problem. For many students the time constraints of the exam is the most stressful component and they find themselves rushing to finish passages at speeds which may leave them unable to fully comprehend them. Students facing this problem could try to either practice reading passages outside of tests in order to build their stamina and focus, or conversely spend slightly longer reading the passages and use their stronger understanding to answer questions faster and make up the time difference. Another common problem students often point out is that certain types of passages( ughh philosophy) pose more of a problem than others. As mentioned before, timed practice reading of challenging text types will aid in speed and comprehension on test day. Students should also try different reading strategies to see if any new strategies work better for them. A common all around tip is for students to make sure they recognize certain passage types that give them extreme difficulty and then just leave these passages for last on test day so that they can maximize the amount of time they have available to finish it.

When reviewing any CARS questions feel free to use the aforementioned tips and tricks to maximize your review. The more effort you put into thoroughly reviewing your answers, the more you will be able to apply what you learned to the next set of questions you attempt. This experience you gain will gradually grow and eventually help you become more proficient in CARS.

#### 4. Your reviewing methods suck I want the REAL way to answer CARS questions

I thought my review strategy was pretty good, but if you want a quick methodology to effectively answer CARS questions here are some things you should consider.

1. **Reading question stems-** When all the answer choices are really subjective, fully understanding the question stem is the difference between finding an answer and pulling your hair out. It is highly suggested that you do not move on to reading the answer choices until you have read and attempted to fully understand the question stem. The reason for this is that test makers word the answer choices in a very seductive way that makes all the answers seem correct. But you know for a fact that only one of the choices is the real one. The best way to find it is fully understand EXACTLY (or at least have a rough idea) of what the question is asking and to create your own mental answer. Once you have comprehended the question and created your own answer then move on to second step below.
2. **Dealing with the answer choices-** It is very common for all CARS answers to be written with wording in which every passage evidence can support the answer choice in some way or another. The key to distinguishing what answer is correct is to find an answer choice that is sufficiently supported by passage evidence that answers the question asked to a greater degree than the other choices. The first step to this strategy is to take your mental answer and then scan through the choices to see if your proposed answer is similar to any answer choices available. In most cases your mental answer and the real choices won't match up perfectly but try to pick the one closest to what you believe is correct. There will definitely be many times where none of the choices match up with your prediction and you will be forced to deliberate among the four choices given. In some cases it's ok to jump straight to the answer choices. For example If the question stem was something simple like, "which of these statements is most true?", then it's appropriate to jump straight to answer choices. Just don't make jumping straight to the answers a habit, the choices will lead you astray as they are designed to do and you will most probably end up picking an answer you may not be confident in.
3. **Referring back to the passage-** No one expects you to have memorized the entire passage your first time through. In fact, many of CARS questions will require you to go back to the passage to refresh your knowledge on the content in order to better answer questions. Students should take care to ensure they are always referring back to the passage appropriately in order to conserve time. What I mean by this is only go back to the passage if you know you need to, not as a default action. If you have read the question and realize

that it refers to something explicit in the passage then it is appropriate to go back to where you think the information is located. If you end up reading the answer choices and realize you need to reread a section of the text, then it is appropriate to go back and read the selected material. If you choose to reread some of the passage for any reason make sure you absolutely know the general area of text you want or the specific fact or opinion you're looking for. Avoid blindly scanning the passage looking for answers at random as this tactic will destroy your time very quickly.

4. **Picking an answer choice-** Once you've decided on an answer choice make sure you scan back through the other answers to double check that the one you chose is the best. Try to move on as quick as you possibly can because there is no reason to spend more time reading and rereading the question and answer stem once you are sure you have finished. Some students have a habit of dawdling around, even on simple questions, by checking and then rechecking their answers because they aren't 100% sure what they picked is correct. I would advise students to mark answers for review only if they know their answer choice was dubious but if they believe they picked a solid answer, they should move on as quickly as possible to avoid wasting time. Be aware that CARS has 1 less passage than the other sections but it also has 5 less minutes and they matter. Every second is precious on timed tests especially in CARS where time pressure leads to rushed passage reading and therefore less informed question answers. Just be aware of conserving your time so that you can devote it to the passages and questions that need it the most.

Let's Recap: Read the question stem and FULLY understand it→Create mental answer→look for mental answer or similar option in answer choices→if not there find the best answer possible→refer back to the passage appropriately→select an answer→read other answers to check that your answer is best answer→ if another competing answer seems too good to write off mark the question for review, but select the bubble for the choice you wanted→move on as fast as possible to conserve time, don't go back and recheck again just yet→After you've finished the test and if you have time remaining go back and recheck all your questions.

Don't feel like you have to follow this CARS strategy to the letter in order to succeed. This is just one possible method of many that you could use. Feel free to take the important principles from this method and create one that works best for you.

5.You sit on a throne of lies, my CARS score is still stagnant what to do?

The principles outlined here are extremely valuable for reviewing as well as answering questions. But the next part of the puzzle is to complete as much practice as you possibly can. The numerous practice resources that have been outlined throughout the rest of the guide should help you find resources to use for practice. Each CARS passage you complete, regardless of whether you score high or low, adds to your experience as long as you thoroughly review it. The more practice you get the more experience you will gain and hopefully the better you will get. It is very difficult to actually feel as if you are getting better since most of the time you will be using third party content to practice CARS which does lead to fairly wide fluctuations in the score. Just persevere through it! By the time you get to the more realistic AAMC content you will be a CARS machine. One thing to note is that even on the AAMC tests your score can fluctuate a lot. For example, on the AAMC sample test I scored in the 99<sup>th</sup> percentile for CARS yet on my first real test I scored in the 80<sup>th</sup> percentile. If you tracked all my scores across AAMC exams you would find that the aforementioned two were the high and low boundaries with the other scores hovering at slightly over 90%. Make sure when using AAMC's test data, you still look at the majority trend of your score rather than the specific test-by-test data to evaluate your proficiency in CARS. In addition, since your scaled scores can shift dramatically, make sure to place a little more weight on your raw score as well since scaled score values are test dependent.

#### 6. I want to learn everything I can from the internet. Is this a good place?

Yes and no for several reasons. The internet, especially Student Doctor Network and Reddit, are huge sources of information for premeds that are taking the MCAT. Besides individual premed circles and associated friend groups, the internet may be the number one source that most students use to gain information. But like all things available on the internet make sure to take everything you read with a grain of salt. The individual who scored a 521 in 6 weeks, is the exception and not the rule. As a rule of thumb if you are reading about herculean feats of accomplishment done by scorers who are in the 95<sup>th</sup> and above percentiles, you have to realize that they are already statistically such a small minority. Therefore whatever study plans or practice strategies they used may not work for you in particular. (I studied for 1000 hours to achieve a score above the 90<sup>th</sup> percentile, so very little magic was involved). When reading posts online never change your study plans based on the opinions of any single individual. Now if a certain studying tip comes to light multiple times across many posts with a lot of high scorers agreeing that the tip is helpful, than maybe it would be good to integrate it into your study plan. These forums have tons of great information and links to resources but be sure to think critically about everything you read. It helps to have a friend who has recently taken the MCAT and scored well so that you can talk about what you read online with them to see what's relevant and what isn't.