

## Ari's 2019 DAT Study Guide

**Becoming a dentist is a difficult journey.**

Perhaps the hardest part is the **DAT**. It's a culmination of all those difficult science courses you took – combined with parts of the SAT – packed into a 5-hour final.

Yet, thousands of students **just like you** take the DAT each year, do well, and get accepted to dental school.

**So how do they do it?**

Those students took it **one step** at a time. First, this is the study guide those dental students used to get excellent DAT scores. It will teach you **everything you need to know about the DAT from scratch** to get you started on the right foot.

Second, you need a **study schedule** that will take you step-by-step, **day-by-day**, to show you exactly what you need to learn to ace the DAT and get into dental school.

Becoming a dentist is a difficult, yet rewarding journey. It will require a lot of work and sacrifice on your part. But I can tell you firsthand, the moment when you treat your **first patient** – and they **smile** and say **"thank you"** – will make all the years of studying more than worth it.

And we can't wait to help you achieve your dream of becoming a doctor of dentistry.

Let's do this!

**– Ari & the DAT Bootcamp Team**

Columbia University

College of Dental Medicine, Class of 2018

## Introduction

This guide is a combination of everything I have learned about test taking, the best study materials, and the DAT itself. I'm **Ari**, creator of DAT Bootcamp, and in this guide, I will outline a study plan that has worked for myself and thousands of students. I'm going to go through some general DAT advice, the recommended materials to use, and a breakdown on how to tackle each section on the DAT. Set aside about 15 minutes to read this DAT study guide in full.



Let's get started.

## Join our DAT Facebook Study Group

<https://www.facebook.com/groups/datbootcamp/>

This study group is an extremely valuable **resource** while you study for the DAT. I recommend signing up for two reasons: First, if you ever have a question on a science concept, practice problem, or something about the DAT, it's very likely that someone on there **will help you out**.

Second, you can help out other people with their questions. You remember 10% of what you read, but 90% of what you **teach**. Even if you don't know the answer to someone's question, look it up and explain it to them. You'll learn something new, it'll stick with you for a long time, and you will have actually helped someone else out.

## Register to Take the DAT

<http://www.ada.org/en/education-careers/dental-admission-test/>

Be sure to follow the steps exactly as specified on the ADA's website. **Read the entire DAT Guide and checklists provided so that you don't run into any trouble on test day.**

## "When should I take the DAT?"

The DAT is offered **year-round** through the Prometric test centers. I recommend registering **early** – seats tend to fill up quickly and it's common for the next available seat to be up to 2 months away!

The majority of students study for the DAT while enrolled in classes, in the summer between junior and senior year. They **start studying around April** and **take the test in the summer**, around June through August. It's challenging, but it isn't anything harder than what you're going to do in dental school, consider it a test run!

I'd recommend taking an **easier** course load during the semester if possible, and starting studying around late March, planning for a June test date. That way you start studying while in school, then finish up finals, and can dedicate some time just to the DAT towards the end during the schedule. You can also reschedule the test to later in July if needed. It's more important to take the DAT **when you're ready** rather than early.

If you're really rusty on your basic sciences, you can go through the first half of the study schedule (the Learning phase) on your own time, just to get a foundation back. Afterwards, you can restart the study schedule, and move through everything a little faster since you've already studied it somewhat, and it'll be more of a review instead of learning the material for the first time again.

Lastly, the DAT is the **same difficulty** throughout the year; there is no advantage to taking it in during the summer or winter.

### “Should I self-study or take a test prep course?”

This is one of the first questions people have when they begin to study for the DAT.

It depends on your studying style. People normally either take a test prep course or self-study, and there are students who are successful both ways. One of the advantages of a commercial test prep course, like Kaplan, is having a ‘classroom’ structure where you’re held accountable to show up and listen to the instructor. The downside is you’re stuck with the resources they provide, which in my opinion aren’t worth the price tag, and it’s quite costly at \$1400.

An advantage of self-study is that you get to decide what you want and tailor your study schedule to exactly what works for you. Plus, it’s significantly more affordable and provides better course materials. More importantly, I think students that self-study score better because they motivate themselves to study, and aren’t waiting for someone else to tell them the next step. The downside is that you’ll have to spend some time designing your own study plan and hold yourself accountable. Fortunately, we’re providing a self-study plan that has worked for many dental students and can be easily personalized to your own liking.

## “How is the DAT Scored?”

The DAT grades you on **6 different subjects**: Biology (**BIO**), General Chemistry (**GC**), Organic Chemistry (**OC**), Perceptual Ability (**PAT**), Reading Comprehension (**RC**), and Quantitative Reasoning (**QR**). Each subject is scored on a standardized scale out of 30 points. The average test taker will score an 18 (50<sup>th</sup> percentile).

In addition to the 6 scores you'll receive above, you'll get an Academic Average (**AA**) score, which is the most important number. The AA is the mean of your scores, without the Perceptual Ability score (i.e.  $AA = (BIO + GC + OC + RC + QR) / 5$ ), rounded to the nearest integer. You can use DAT Bootcamp's [AA Calculator](#) to help you calculate your estimated AA.

## “What do I need to score on the DAT?”

The **average for acceptance** is around a **20 AA** (~85<sup>th</sup> percentile). This is just an average though, a quick look at the ADEA Guide to Dental Schools shows that students get accepted with lower scores as well! I recommend getting a copy of the ADEA Guide to Dental Schools to find the average DAT scores for the schools you want to attend.

Many schools also have **cutoffs** for minimum DAT scores. Each school has a different cutoff, and some have no cutoff. I know of one student who was accepted to the University of Florida with a 14 in QR, on the condition that he retake the DAT and score at least a 15 in each section to meet their cutoff. Talk about pressure!

### “How many questions do I need to answer correctly to get a 20?”

**Generally speaking**, you can only miss around 5 questions in each individual science and math section to score a 20, the average for acceptance. Scores of over 23 are very rare (98<sup>th</sup> percentile and up). You can miss around 20 questions in the perceptual test to score a 20. And lastly, you can miss around 10 questions in the reading comprehension section to score a 20. These are just averages, there are many different versions of the DAT being tested at the same time. **Every DAT is scored differently according to its own difficulty.**

The point is there **isn't much room for error** on the DAT. In addition, you don't have a lot of time for each question. You have to know how to get to the correct answer and the fastest method to get there. Using DAT practice tests will help you build these skills.

### A Quick Word About Retakes

First, you should **NEVER take the DAT just to see what it is like**. Never walk into the exam thinking you can just retake it if you bomb this attempt. You should walk into the exam knowing you've worked hard and are ready to give it your all on the first try.

You should always consult your pre-health advisor if you're planning on retaking the DAT. Some people end up retaking the DAT when they had perfectly good scores to start with, and end up wasting time and money. In addition, each dental school looks at retakes differently. Some dental schools only consider your highest set of scores, others average all your attempts together, and some only consider your latest set of scores. All in all, it's important to avoid retaking the DAT unless necessary. If you're retaking it, you need to try to score well on this attempt.

Of course, there are many people who retake the exam and get accepted into dental school, so it's not the end of the world if you need to retake it. I know people in my class at Columbia who retook the exam, and admission committees understand that sometimes things just don't go right. You just have to learn from your experience and figure out what to do different next time to be better prepared.

## 3 Simple Things to Improve your DAT Score

First, a lot of students tend to neglect sleep, but I think it plays a critical role in scoring well on the DAT. Try to sleep at least 8 hours a night while studying for the DAT, here's why:

**REM sleep** in particular plays an important role in long-term memory. The majority of REM sleep tends to occur in the last hour of sleep, which is why it's important to sleep 8 hours. Sleeping less means less REM sleep, which means it'll be harder to remember the information you're studying. Drinking Red Bull and coffee will help you stay awake, but if your goal is to remember the information so you can do well on the DAT, you also need 8 hours of sleep.

Second tip, take **regular breaks** to help you be more productive. Studying for over 8 hours a day is not the best use of your time and will lead to burn out. You only have a few hours of strong, attentive, and productive studying each day. It's better to focus and **study hard for a few hours** and then relax the rest of the day, rather than to kinda-sorta study throughout the day for 10 hours.

To help with focus and taking breaks, try using the **Pomodoro technique**. The actual technique involves studying for 25 minutes on a set of material, taking a 5-minute break (just enough to go drink some water/get up and move around), and then study for another 25 minutes. After 4 of these study sessions, you take a longer 20-minute break. I try to do around 45 minutes of studying with a 5-minute break, see what works best for you.

Lastly, find a good **study environment**. Think about where you actually get your best studying done. I recommend a place that is generally quiet, well lit, and has a chair/desk combo. Libraries and coffeeshops are great choices. Studying in your bed or recliner is probably not as effective.

## Essential Materials

- ☐ [DAT Bootcamp - Full Membership](#)

- ☐ [ADA's Official DAT 2019 Candidate Guide](#)

Be sure you read this entire guide to review the rules for the DAT.

- ☐ [ADA's Official DAT Sample Questions](#)

A free full-length practice test from the ADA. Note these problems tend to be easier than what's on the current DAT, but a good free official resource nonetheless.

- ☐ [DAT Bootcamp's Explanations to the DAT Sample Questions](#)

We created an explanation for each practice problem in the official DAT Sample Questions to help you review your mistakes.

- ☐ [DAT Biology Quizlet Flashcards](#)

Based on our Bootcamp Bio Notes, use these flashcards to help your bio review.

## Strongly Recommended Materials

- ☐ [DAT Bootcamp's study app \(iOS only, Android coming soon\)](#)

This free study app gives access to the PAT generators for practice on the go.

- ☐ [DAT Biology Chrome Extension](#)

Review high-yield DAT biology facts in your Chrome tabs! Each time you open a new\_tab in Chrome, a new DAT biology fact will appear. Perfect for additional studying throughout the day!

## Supplemental/Optional Materials

- ☐ [DAT Booster Packs](#)

If you need additional practice after finishing a section on DAT Bootcamp.

- ☐ [DAT Destroyer and Math Destroyer](#)

You can save a lot of money by [buying an older version](#). Anything after the 2013 version is perfect and provides more than enough practice.

- ☐ [ADA's DAT Practice Test \(\\$100\)](#)



## A word about supplemental materials:

DAT Bootcamp contains everything you need for a great DAT score, and many students have achieved exceptionally high scores using only DAT Bootcamp. However, some students may benefit from extra practice after they practice through all the Bootcamp questions.

Not every student will need the extra practice, but for the ones that do, the ones mentioned are the additional resources I recommend for the overall goal of doing very well on the DAT.

## A word on how to study on DAT Bootcamp:

Science can be a tricky subject to review due to the volume and complexity of the information. DAT Bootcamp uses a **question tagging** system where you can rate how well you understand a question during review. By tagging your questions, you can mark which questions you want to revisit to review later.

I strongly encourage you to **tag your questions** as you work through DAT Bootcamp. It'll save you time by focusing your attention on the areas you need to. You'll avoid wasting time reviewing things you already know. Your review time is vital to learning the material for the DAT.

If you answer a question and got it correct, skim the explanation to verify you got it correct for the right reasons. Tag it as **Mastered** if you feel confident in answering questions like that.

If you answer a question and the information in the explanation is a bit fuzzy to you and could benefit from a second review, tag it as **Reviewing**.

If you get completely blindsided by a question and need to revisit it again, tag it as **Learning**. Review the relevant lesson and fill in the gaps of knowledge.

## **DAT Section Breakdown**

The DAT consists of **4 sections** tested in this order:

1. Survey of Natural Sciences (100 questions, 90 minutes)
2. Perceptual Ability (90 questions, 60 minutes)  
(Optional 30-minute break)
3. Reading Comprehension (50 questions, 60 minutes)
4. Quantitative Reasoning (40 questions, 45 minutes)

### **Survey of Natural Sciences**

You'll have 90 minutes to answer 100 multiple-choice science questions. The Survey of Natural Sciences consists of 40 biology questions, 30 general chemistry questions, and 30 organic chemistry questions, in that order.

#### **Biology (40 questions)**

The biology section is probably the toughest to prepare for because of the breadth of the material. For this section, we are going to read and memorize all of the [Bootcamp Bio Notes](#), practice with the Question Bank, and tie it all together with the practice tests.

#### **Bootcamp Biology Notes vs. Biology Academy**

The Bootcamp Biology **Notes** function best as a study guide for quick **review**. We've cut out the work for you by creating a study guide with all the high-yield DAT information.

The Bootcamp Biology **Academy** is a textbook version of the Biology Notes. It includes more details and illustrations on the same bio concepts to help you **learn** the information. Refer to the Bio Academy for deeper explanations. I recommend using a mix of both to review biology.

These two additional materials will help you review DAT biology, too –

- ☐ [DAT Biology Chrome Extension](#)
- ☐ [DAT Biology Quizlet Flashcards](#)

## General and Organic Chemistry

Both of these sections individually consist of 30 questions and are part of the Survey of Natural Sciences section too. For this section we will use Mike's DAT Videos to learn the material and create comprehensive notes (this is key). We will use the Question Banks to go through some challenging questions so we can continue to fill in our gaps of knowledge. Finally, we'll use DAT Bootcamp practice tests to tie everything together.

## Perceptual Ability

Unless you're in architecture or engineering, it's unlikely you've encountered this material before. You have 60 minutes to complete 90 questions that test your spatial and perceptual abilities. The 90 questions are broken up into 6 sub-sections, including: keyholes, top-front-end, angle ranking, hole punching, cube counting, and pattern folding (in that order).

The good news is that anyone can learn how to beat this section. It'll be frustrating at first, but if you stick with it and carefully review the solutions, you'll begin to know what to look for. We'll be using DAT Bootcamp PAT Academy, generators, practice tests and explanations.

### PAT Trainer Game

<http://datbootcamp.com/classroom/perceptual-ability/pat-trainer-game/>

This is probably the best free practice you can get to develop your spatial and perceptual abilities, plus it's fun. Play this game every day during your DAT prep, make a habit to do it during your lunch break or when you're waiting for something to download. Try to beat my high score of 2.10.

## Keyholes

PAT Academy:

[Watch these videos on the Keyhole section](#)

A 3D object is presented and you have to determine which aperture it will perfectly fit through, like a key in a lock.

Always start by looking at the answer choices and try to match them up to the 3D object. Use the process of elimination, look for which answer choices will NOT work and eliminate them. Often these questions will be proportion-based, so you will have to judge distances and slopes.

## Top Front End (TFE)

PAT Academy:

[Watch these videos on the TFE section](#)

Two 2D images of a 3D shape are provided and you are asked for the third 2D image. A solid line is a change in elevation that you can see; a dotted line is a change in elevation you cannot see. Check out these tutorials for an in-depth explanation:

[DAT Bootcamp TFE Tutorial](#)

Tackle these problems by focusing in on one single piece of the image in the two given views. You should focus on any walls or unique looking pieces of the image. Using that information, try to determine which of the answer choices matches up correctly to that area. Eliminate answers that do not properly match. If you cannot eliminate any answer choices, choose a different piece to focus on and see if you can eliminate answers. Rinse and repeat until you have the correct answer.

It's important you **DO NOT use the line counting method** when practicing for this section. Line counting is an old technique that used to work on older versions of the DAT. However, line counting will eliminate either none or only one of the answer choices on the updated DAT. You need to be able to visualize the 3D object.

## Angle Ranking

PAT Academy:

[Watch these videos on the Angle Ranking section](#)

[Start using DAT Bootcamp's Angle Ranking Generator](#)

A set of four angles is presented and you have to rank them from the smallest angle to the largest angle.

This section is probably the most frustrating to get better at. Play our Angle Ranking Generator game to keep getting new angles to rank. Try to spend the least amount of time on this section. You are much more likely to get other questions correct if you spend more time on them. Spending more time on an angle ranking question doesn't usually mean you'll have a better chance at answering it correctly.

## Hole Punching

PAT Academy:

[Watch these videos on the Hole Punching section](#)

[Start using DAT Bootcamp's Hole Punching Generator](#)

A square piece of paper is folded multiple times and hole punched. You must unfold the paper and determine where the holes lie on the paper.

Draw a 4x4 grid on a piece of paper before you attempt to do these problems. Then, starting with the last fold, unfold the paper one step at a time. Anytime you see a hole punch in the paper, mark where it is located on the 4x4 grid. Continue to unfold the paper one step at a time until you have your solution on the grid, and then match it up with one of the answer choices.

## Cube Counting

PAT Academy:

[Watch these videos on the Cube Counting section](#)

[Start using DAT Bootcamp's Cube Counting Generator](#)

A set of ~15 cubes are presented and you must determine how many cubes have x amount of sides exposed. Usually one figure is presented for 3 questions.

To tackle these problems, make a 2-column chart shown below:

# Sides Exposed	# of Cubes
0	
1	
2	
3	
4	
5	

Then, go one-by-one to each cube and determine how many sides each cube has exposed. Make a tally each time you count the number of sides a cube has exposed on the right. The bottom of a cube is never counted as an exposed side. In addition, there are no floating cubes; every cube must be supported by another cube underneath them.

## Pattern Folding

PAT Academy:

[Watch these videos on the Pattern Folding section](#)

[Start using DAT Bootcamp's Pattern Folding Generator](#)

A flat 2D image is shown and you have to fold the image into a 3D shape. It's important to note that you have to fold the image INTO the plane of the paper, NOT up and out of the plane of the paper. Again, the trick here is to focus on just one aspect of the shape. Try to match one of the shapes in the answer choices to the image in the question. Then, determine which piece would be connected to that piece. Don't try to fold the entire image in your head, just focus on figuring out the orientation of 2 pieces at a time and eliminate answer choices that don't work.

## Reading Comprehension

RC Academy:

[Watch these videos on Reading Comprehension](#)

You'll be presented with three ~1500 word scientific passages with 16-17 questions per passage. You'll have a total of 50 questions and 60 minutes to complete this section.

Reading is a tough section to prepare for, and it's best to prepare for this section over a long period of time. The good news is that **if you are able to read this study schedule, you already have the skills to pass this section.** We'll be using DAT Bootcamp RC Academy and practice tests.

The reading on the DAT is different from the SAT/ACT. It focuses more on detail-based questions rather than conceptual/application questions. Often, the question will refer to a specific part of the passage, and the answer can be read directly from the passage without any comprehension. It's more of a text-based scavenger hunt than a reading comprehension test.

Every day, navigate to our reading comprehension classroom page (<https://datbootcamp.com/classroom/reading-comprehension>) and pick out an article or two to read from Scientific American. The best way to improve your reading is by reading similar content that will be found on the exam. It doesn't take that long to read these passages. Try reading them before class gets started, while you wait in line at Starbucks, or even as you're eating lunch.

There are a lot of strategies to tackle reading comprehension, and I've documented most of them on our [RC Strategy Page](#). Joel also goes over the most popular ones in the RC Academy. You'll have to practice and find out what works for you. For me, I read the entire passage and then answer the questions, very plain and simple. It worked best for me, but you may find another strategy works better for you.

Others use a method called search and destroy, where you don't read the passage and go straight to the questions. This is a true text-based scavenger hunt. Once you read the question, you quickly scan the passage and look for keywords that the question refers to. Then you read that specific part of the passage and answer the question. Questions that require some comprehension are marked and answered after all of the detail-based questions have been answered, because by then it's likely you read the entire passage. Students have plenty of success with search and destroy; I didn't like it because it put too much pressure on me when I couldn't find an answer. Try it out and see if it works for you.



Another method involves writing down all of the paragraph numbers on a sheet of paper and reading the entire passage. As you read each paragraph, you write a few keywords that describe the paragraph. For example, you could say "1. Origin of disease; 2. Mechanisms; 3. Causes; 4. Etc.". This way, you have something to refer to if you need help finding an answer in the passage. If a question asks "Which of the following describes the mechanism of the disease?", you can refer to your notes and see that paragraph 2 talks about mechanisms.

### Quantitative Reasoning

40 math questions are presented and must be answered in 45 minutes. The question difficulty goes up to algebra II and trigonometry, no calculus is required.

You'll have an on-screen calculator; however, the calculator may have a slight lag. We built our calculator in a similar fashion to help prepare you for this. Be sure to hit Clear plenty of times before you start a new calculation!

Since this is a time-intensive test, we will tackle this section in two runs. First, go through the exam and answer all of the easy questions. If you see a problem and you immediately know how to do it, solve it right there. If a problem looks difficult or you're not sure of how to solve it, guess, mark, and move on. Once you answer all the easy questions, move on to the marked questions. This way, you'll get all the easy points and at least put down an answer to all the questions.

## 2019 DAT Study Schedule (10 weeks)

[Click here to continue  
to the study schedule](#)