

# A Student's Guide to Preventing Cheating On Anki Graphs

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## 1 Introduction

There are ten methods (that I know of) that can be used to cheat on the assignment of reviewing with Anki and then turning in a screenshot of the graphs window to prove that you have done it. Here they are, along with skills needed to use them properly and some potential catches (as in, how you, as a teacher, could catch students doing it). I'm assuming readers know the basics of how Anki works and how to navigate around a computer screen.

If you have any other methods, additions, or confusions, please tell me—I'd like this list to be as complete as possible.

## 1.1 Shame On Cheaters

As I mentioned in the header, the purpose of this article is not to help people cheat. If you are a student and reached this article while researching how to cheat, I have three words for you: *Shame on you*.

Spaced repetition is the best thing since sliced bread, and you should use it. I understand, however, that if you are dead set on using this information to cheat, I cannot stop you. That is your business.

## 1.2 I Am Not Attempting to Help Cheaters

If you're a teacher and are going to send me an angry email about how I helped people cheat, realize that I posted this document in an attempt to help *you*. If you think the presence of my document helped your students cheat, please implement my suggestions (to prevent that in the future), and then be done with it.

If you still don't agree with my belief that having information available and providing teachers with the ability to prevent cheating is better than allowing students to figure this stuff out and cheat undetected, feel free to send me an angry email. Recognize, however, that it's not very likely to do anything.

And if, after reading all my explanations and this entire document, you *still* don't believe that I am not trying to help people to cheat, please read this forum thread:

<https://groups.google.com/forum/?fromgroups#!topic/ankisrs-users/u-sTZItQG28>.

I write in the second person describing a student intending to cheat. This is not because I'm secretly targeting this at students, it's because this perspective makes the most sense and is the most interesting to read.

## 1.3 New in Anki 2

I have updated this article for the release of Anki 2. Changes in menu choices and behavior have been considered. Any changes in the usefulness of various techniques have been noted in a box at the end of each section. In general, it has been made harder to cheat in really low-tech and simple ways, but not much has changed with regard to the more effective ways. If I missed something, please contact me (contact information at the end of this article).

# 2 Ways To Cheat

## 2.1 Turn in another student's graph.

This is the crudest and most time-honored method in existence of cheating on a school assignment. Quite often, it works. Teachers could detect it by comparing graphs, but often they don't take the time to.

The applicability of this method has not changed in Anki 2.

## 2.2 Turn in the same graph every week.

Do Anki properly for a month, save a copy of the graph with a 1-month graph interval, and print 25 copies of the graph. Sign your name to them, and turn them in every week, “proving” that you’ve reviewed. Once again, this method is easily detected, but teachers often don’t take the time to cross-check work, especially since it would necessitate them saving previously created copies of graphs.

This method is so difficult as to be nearly worthless in Anki 2.0.2 and above, as the date and time the graphs were generated is now included at the bottom of the graphs. It would still be possible to change them if you had good Photoshop skills, or (if your teacher isn’t too picky) to simply screenshot only part of the graphs or to crop off the bottom.

## 2.3 Flip through cards really fast, or let Anki idle for ages on one card.

If your teacher only looks at either the “Review Time” graph or the “Reps” graph, you can open Anki every day and complete the assignment in a few seconds by repeatedly pressing the spacebar through reviews or letting it sit on one card for a few minutes, depending on which graph. I’ve seen a *lot* of students do this, even while studying in class (looking over their shoulders occasionally to see if the teacher was watching).

This method is harder in Anki 2; if your teacher has you use the “save image” button, he or she gets all the graphs, so a strange discrepancy is probably more likely to be noticed. However, if the review time is similar on every day, your teacher still might not look carefully at the scale (if your minimum review time is 0 minutes and your max is 1 minute, your graph will look the same as someone whose graph goes from 0–40; only the scale will be different).

## 2.4 Photoshop the graphs.

Anyone with a steady hand and nominal skill at image editing can make a decent mockup of graphs. Just use Anki for a few days until you have a few differently-sized bars, then copy some of the bars and paste them next to each other. You’ll probably need to do Anki again for a couple of days every so

often, or the repeated bars of identical height will start to get suspicious. This method is probably best used occasionally if you forget to do your reviews in a day. (Don't forget, though, that you have to repeat the bar-pasting or merge the old and new screenshots in some way on the next few graph turn-ins if your teacher asks for 3 months, or there'll suddenly be a very suspicious missing bar.) This is probably not the most effortless way to cheat—keep reading.

Unless you're really, really good at image editing, a careful study of the graph will reveal some inconsistencies. But with many graphs to grade, it's very unlikely your teacher will notice.

This method is more difficult in Anki 2.0.2 due to the introduction of a light green checkered background that makes it easier to see small imperfections and unskilled use of the clone/copy tools.

## 2.5 Fiddle with the midnight shift option.

The midnight shift lets you set a new day to begin at a different time than midnight—for instance, if I was nocturnal and woke up at 10:00PM, I might want to set this option to -3 hours (i.e. new day begins at 9:00PM) so I'd have a new day when I woke up. The idea is that by repeatedly changing it, you could make Anki do many days of study in the same study session.

While this method may seem promising, it flat-out doesn't work (at least in Anki 1.2). I've only included it because I've heard people talking about the possibility. Anki might give you new reviews, but they'll all show up on the same day for graphing purposes.

I have not retested this method to double-check that it does not work in Anki 2.0. If you try it and it does, please contact me (information at the bottom of this document).

To the best of my knowledge, the applicability of this method has not changed in Anki 2.

## 2.6 Modify/hack the collection files or Anki.

I have not tried this method, but it would certainly work. Anki collections are SQLite databases, which can be modified with external programs (such as *SQLiteBrowser*). So if you can find where Anki stores the length of time you studied, you can change your collection file so that Anki thinks you were studying longer than you were, then print out legit-looking graphs from the program.

This method would be a lot of bother. It would also be easily detectable unless you were really dedicated. That's because Anki calculates statistics by summing the time spent on each individual card. So if you wanted to make it

undetectable, you'd have to edit hundreds of cards (you could write a script to do it, but that would be even more complicated).

Since Anki is open-source, if you have Python skills, another possibility is to modify the program to fill the graph with information you provide. This would work better but require even more initial time investment.

This method, however, is not preventable, so if you're determined, it will always work for you. It will always be possible to fake program output by modifying the source code of that program (and often the data files it uses). The good news for teachers is that not many of the students who have the required skills are likely to have the motivation to cheat on this assignment.

The applicability of this method has not changed in Anki 2.

## **2.7 Make a fake/different deck and turn in graphs from that.**

If you are somehow willing to use Anki to study, but flat-out refuse to study the deck your instructor gives you, you can select a different deck than the one that you're supposed to study. Anki 2.0.2 displays the deck name at the bottom of the graphs screen, but of course you can just rename your other deck to the name of the one your instructor provides.

This method requires marginally more thinking skills than in Anki 1 (because of the name being displayed at the bottom of the graphs), but isn't substantially more difficult.

## **2.8 Turn the graph in late.**

If you were told to review at least 6 times in the week, and you only did 5 times, you can turn in the graph one day late and pretend that you printed the graph out at the correct time. This isn't likely to fool most teachers, though. Unless your teacher forgot to collect graphs one day, you'd have a pretty hard time getting away with this at all, and regular abuse would be impossible (you'd have to turn in the graph one day later each week). If you were desperate not to lose credit in one week, you could pretend you printed your graphs but forgot them at home, and turn them in the next day. Note that the next week will have only 6 new bars/spaces (rather than 7 for the entire week), so if you have an attentive teacher who compares graphs, you're not likely to get away with this (unless you then use some other method of cheating to cover up the discrepancy the next week).

The applicability of this method has not changed in Anki 2.

## 2.9 Increase the intervals to lower your workload.

This isn't exactly cheating per se, but if you double the amount of time between being shown cards again (in the deck options found by clicking *Options* at the bottom of the overview screen after selecting a deck), you'd have half the number of cards to do every day. But that would also make the cards harder to remember, so if you are really studying you would probably have to spend longer relearning forgotten cards. If you aren't really studying, there is little point in trying this method at all.

The applicability of this method has not changed in Anki 2.

## 2.10 Futz with the system clock.

This is no doubt the best method of cheating, the hardest to detect, and the most worrisome for teachers. Did you forget to review for a few days or on a particular day? You can fix it by messing with your computer's clock.

First, look at the graphs and determine how many days ago you forgot to review. Then close Anki and look near the clock display on your computer for an option to change the date. Once you get into the settings, change the date to the date you forgot to review. So if you forgot to review yesterday, and today is the 21st of October, you would select the 20th of October as the new date. In essence, you're going back in time to the day you forgot to review.

Now click OK and save your changes, and reopen Anki. Anki will probably put up a scary-looking warning that says something like "Your system clock is 86,400 seconds behind! Please fix the clock and restart Anki," but you can safely ignore the warning—just click OK. Then study away. If you need to do multiple days, exit Anki, change the date one day further ahead, and continue.

If you're up-to-date in your current reviews and just needed to fill a hole in the graph, Anki is smarter than you and displays that you have 0 cards due for review. In this case, use the "custom study" button at the bottom of the deck overview screen (after selecting the deck) and pick *review ahead* or *random cards* to get more cards to spend a believable amount of time studying on.

This method does not require you to do anything special when you submit graphs in the future—Anki really thinks you studied that amount of time on that day, and thus will include the faked bar in future graphs. The only drawback of this trick is that you still have to spend the time studying, so it's not a way to completely avoid work. For that reason, it's better suited for one-off "whoops!" moments than for regular use to completely remove the need to study.

The applicability of this technique has not changed in Anki 2.

### 3 How To Minimize Cheating Opportunities

Anki is an open-source program with an open deck format, which means that if you're dealing with a determined half-decent programmer you can't do a thing to stop him (yes, unfortunately in programming the odds are greatly for it being a *him*) from making fake graphs. But there are some things you can do to minimize students' chances of getting away with cheating.

1. Don't tell students how they can cheat. This is pretty much common sense, but only call people out and say what they did to cheat if you actually catch them cheating. If you publicly tell the entire class that changing the system clock lets you cheat, pretty soon the class's entire group of slightly-less-than-ethical students will be using the trick.
2. If you can, compare the graphs of different students. And even if you don't, keep a critical eye as you check graphs, and if you happen to recognize that several people's graphs are suspiciously similar, check them against each other. If they're exactly the same, you can safely call them out on it—there is essentially no chance of a false positive.
3. Glance at graphs for a moment, looking for visual imperfections. Few students are pros at Photoshop, and chances are a sloppy job will show. Extra or absent whitespace, bars that are thinner or thicker than others, the background not matching up, and repeated sequences of bars of the same height are big giveaways.
4. Give students a zero on graphs if they aren't turned in exactly on time, no excuses accepted. This prevents method 8 and isn't exactly a bad requirement anyway.
5. Watch the scale on graphs! If someone only spends 1 minute every day on 200 cards, their "Review Time" graph may appear to be full, but the scale will only go from 0 to 1. If you're flipping through graphs quickly, it's easy to not notice that, so make it part of your normal scan.

This leaves methods 6, 7, 9, and 10 unchallenged. You don't really have to worry about method 7, because there are very few students that would even consider studying some information to avoid studying other information. It is debatable whether method 9 is even cheating, and since it really makes a student's life harder, it's also not a big deal. (Also, a student using method 9 is likely still studying, so it's much better than nothing.)

So we have fiddling with the clock and hacking the deck files as our major adversaries. Unfortunately, there's no way to ensure someone doesn't do either

of these things (save for watching over their shoulder every time they have access to their Anki files and Anki source code).

But there is a way out, and that is to provide students with some other incentive to do Anki. For instance, consider giving a quiz every two weeks that could contain *any* information students might have learned in their decks so far. (Students need to use non-random new card order for this to work, of course, if you want everyone to know the same words). Or you could just give a huge cumulative test once students should have finished all the cards in their deck. Make it worth a large number of points and you could scare students into doing Anki (in my mother's class, your grade in the entire class will be lowered to a set level if you do not score well enough on the test). If spaced repetition is properly used, students should get around 90% on these tests, regardless of what point in the learning process you give them the test. You could give it to them two years after they initially learned it, and provided they've been properly studying, they should still get the same score.

You could perhaps score these quizzes pass/fail—over 80% (being conservative) means you've been studying, less means you haven't. With average optimal study, you can expect to remember about 95% of cards at any given time (the percentage that you remember by the time the card comes up again is 90%, but at any given time you know more). However, a number of things can decrease this number, such as suboptimally worded or formulated questions, lack of concentration during study, bias on the quiz towards harder words, and so on. I think 80% is a fair number.

This could be part of the participation grade for doing Anki that was previously reserved for graphs, if you want. It's your class—just come up with a way that works for you.

I hope you've gotten some useful information out of this document and take some recommendations to reduce, if not eliminate, your class's ability to cheat.

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