

Best Delivery Method? (for teaching AP Stats, July 2017)

Hello all, This will be my second year teaching AP STAT, and last year my students weren't particularly excited about note packets- I think they are a little lazy. Does anyone else present class note in a different form? I loved the notes because they were beneficial, but many students thought they were wordy and in turn didn't like the review them. Any suggestions?

Alexis Graham

Hi Alexis,

I see this is your first post: Welcome!

I wonder if they didn't review your notes because they were too wordy, or really, they didn't want to review/study at all. Knowing my students, it would be the latter not the former!

My notes have an intro activity, a few topics/questions to discuss, and practice FRQ(s). Students like the notes since it's difficult to copy down the problem or context to remember what their notes are about.

You could try to trim your notes quite a bit so they're not so "wordy". So, for instance, maybe you're teaching on Two-Sample T Tests. Your notes could be like this:

- 1) Do an activity/simulation to introduce the two-sample T test [this would need to be 'wordy' to explain how to do the activity]
- 2) "What are the hypotheses and common problems when writing hypotheses?"
- 3) "What are the conditions to perform a two-sample T test? What if conditions aren't met?"
- 4) "How do we find the test statistics & p-value? Can we find a p-value if the normal condition isn't met?"
- 5) Do an FRQ (model "4 step process")

I imagine this would be 3 pages. One page for the activity; one page to ask/answer the questions; last page for the practice FRQ. This doesn't seem too wordy, yet is still hitting the main points. Page 1 and 3 would be mostly students working & discussing; page 2 would be me telling them the info or me asking them what they think the answer would be based on prior knowledge or the activity.

Jeff Eicher

I try not to do a lot of notes. Sometimes I default to notes, but more and more I try to have students do activities, do problems, and have discussions. What I hand out will typically be the problem. If it's a problem from the textbook I have it projected and I don't hand it out.

I have some pretty good demos of concepts prepared but I've been trying to turn those into discovery-based activities. It works pretty well.

As we work through these, I'll write things down and some students dutifully copy it all down, but because of the nature of the discussions and activities it's sometimes hard to predict what will come up and in what order. So having that all scripted in notes wouldn't be helpful.

Corey Andreasen

Hi Alexis,

I haven't seen your notes, but perhaps they are NOT too wordy. Students are not use to so many words in a math class and might be complaining based on this.

Considering how many students lost points on the exam #1 for leaving out "predicted/expected/on average) on #1 and left out "sufficient evidence" on #5, the students need to learn that wordiness sometimes is very important.

Sally Miller

I'm a bit confused.

Students have a "notes packet". It's called a textbook. It's filled with great explanations. I am genuinely and consistently surprised that teachers feel a need to send home some sort of packets that completely cover the course.

Students should take notes because as they summarize they learn and consolidate the information and make it their own.

One of the best delivery methods, as documented by research, would be to train your students to take Cornell notes.

Students who really want to review can find more sources than their notes and the textbook online. The TPS videos would just be one simple example. The OpenIntro free pdf's would be another. There are no lack of resources for a student who wants to spend the time. They may need guidance in choosing. But I just don't understand why a teacher would package up their explanations and send them home with students.

Jared Derksen

I don't really do notes. I assign reading and videos for the students to watch as homework and in class we work on problems. I use TPS 3e and I use the videos created by ProfRobBob which I found on YouTube. If you use TPS 4e or 5e use the videos that Daren and Josh created. I don't know if BVD or POD have videos, but I would not be surprised if they did. Even if they don't, you can use the ProfRobBob videos. Just go to the topic name on the video.

I give the students a reading guide at the start of the chapter and they have to fill it out as they read. It is due on exam day and it is worth 25 points. The exam is worth 100, so not doing the reading guide has a very negative effect on their grade. Do I believe that every kid reads the books and fills out the guide? No, I do not, but I believe that it gets more kids to do it than normally would and at least they are seeing the vocabulary and writing about it, even if all they do is skim the chapter to find what they need.

Michael Rice

LOL Jared: "Students have a "notes packet". It's called a textbook. It's filled with great explanations." So funny! [not that you're joking, but how you said it is funny]

This reminds me of someone asking, "What do you believe the Bible is all about?" and the answer: "Read the Bible" then the follow up question: "That's a BIG book! Can't you summarize it for me?" This is all I'm doing when I make notes from the textbook --- let me point out the important stuff so you don't get lost in Leviticus.

Do you use Cornell notes? Does anyone out there use these? Just wondering the pros/cons. I can sense the pros from your post, Jared, but I imagine the cons may be:

- 1) Not structured enough
- 2) Time to teach/train the students how to do it
- 3) Teachers relapse into the usual way they themselves did notes
- 4) One kid copies another kid's notes without processing it themselves (same problem with fill-in-blank notes)

Jeff Eicher

These are AP students we are talking about here. They are going to college and this is modeling a college course for them. I believe you are doing them a huge disservice by handing them a note packet. None of my professors ever did that. Students need to learn how to take notes for themselves and what they need to write down in order to be successful.

Michael Schwerdtfeger

I don't provide notes for class. I do expect the students to pre-read the section prior to class and I provide a reading guide because their experience with technical reading and writing is virtually non-existent. While this is a college level course, the kids are still high school aged. I have had sophomores take the class. In class I give a warm up quiz based on the reading guide, and allow them to use their guide during the quiz.

Of course not all kids complete the guide, but that is true for all assignments - from inclass activities to homework to projects.

Mary Harrison

To build on Jared, Michael, and Mary's thoughts, I have always made detailed notes packets, but realized that I am simply regurgitating all of the examples (many with videos) and vocabulary boxes and summaries of big ideas found in my textbook, so my goal this year is to teach them how to use their textbook more effectively to figure out what they need to know and how they can learn it using the excellent resources in the book. My first assignment is a reading guide of the first section, pointing out key features of the book and how to use them, but then I don't plan on giving reading guides all of the time. I plan to give reading assignments, reference the book in class as a resource when we do activities and practice problems, and lecture less. I teach mostly seniors at a private school where most students are fairly motivated, so I think this will work. But, no matter what age or type of students you have, you have to teach them HOW to do what you EXPECT them to do to be good students in your class.

Jane E. Taylor

There are many ways to teach this course. I don't think one technique is superior for all teachers, students, and situations.

I struggle with the balance between notes, assigned reading, assigned video tutorials, etc.

I personally have not been able to make textbook reading stick. I find that a percentage of kids do the reading and too high of a percentage of kids do not do the reading. I am not comfortable adopting a mindset where "if kids don't do the reading, that is their fault and they will suffer the consequences". I feel it is my job to impart as much statistical knowledge as I can into every kid that comes through my doors. So I teach the topics from square one in my class and never assume they know anything about a given topic coming in. If you never expect kids to read a section ahead of time... then they are all equally clueless when you teach the lesson. I find this easier to handle than when half the kids have read and know the topics and half are clueless.

So I make detailed notes. Detailed to the point that a student can read the notes and review notes and never reference book. Now many will reference book. Of course, the kids love these note packets. They read through them to review for the tests, they read through them when reviewing for the exam. I even have kids that say they use them and reference them when they take stats in college. I may be hand-holding and doing these kids a disservice, but oh well. I am trying to do what is best!

I ask the community to be gentle with the criticism! :)

Scott Blackburn

I agree. Guided notes packets, which we walk through together in class, help kids (and ME) stay focused and deliver the content as efficiently as possible. We can spend all day fantasizing about every darling cherub reading the textbook every night and coming in to class with a rich understanding of statistics...but that simply isn't the reality for many teachers. Kids are gonna skimp on homework - that's part of being a teenager. Given that premise (as cynical as it may seem), I figure it's better for them to lose out on practice than to lose out on vital content information. One of my students did literally one homework assignment the entire year but still passed the exam; I don't think that would have been possible if I had relied on homework for content delivery. In math, kids need to see things worked out, and be able to ask questions throughout the process.

But to each their own - different styles work better for different teachers!

Brain Broderick

I struggle with this every year, and every year I tweak my system a little bit! Right now I hand out key practice questions (so my students have examples of graphs and entire question stems). We do a lot of in class work together to understand topics, so these are meant to help provide an example for them to reference.

I do provide an outline of introductory activities so they may reference them later (like the "Smelling Parkinson's" activity I will be doing on day one). For example, during the chapters introducing graphs we make graphs together in class using data we've collected. Then I hand out a sheet with pictures of all the types of graphs (for a different data set), and the students jot down notes or reminders next to the pictures. This gives them the hands-on experience and a nice reference for later.

This year I am going to try and have them reference the textbook more, especially for definitions (if they are the type of student that likes definitions), but I am not going to provide the "fill in the blank" type of notes for them. I will provide guiding questions while they read, however. My students have no skills in reading textbooks, so I am going to try and help develop them. Anyone with good tips for this, please let me know (I use BVD). Right now my plan is to give them some questions to answer, the next day have them in groups to discuss what they found, and then summarize the reading together (this would be our warmup of the day). This will hopefully help them realize the useful resource the book can be (and how witty the BVD book is - those footnotes!!!!).

April Vach

Kids enter our class as high school students; we want them to become college students. That involves taking responsibility for learning, including reading the text. Most have never tried that before, especially in a math class. Here are some of the things I do:

- At first, ask them to read just one page. Pick something interesting (perhaps even funny) that you did not discuss in class. There should be 1 or 2 key ideas or vocabulary words involved, or just a memorable example. The next day, teach as if everyone already knows that.
- Don't teach button-pushing. Tell them they can learn to use the calculator by reading the book. (They can.)
- When you present a new topic, instead of doing a 2nd example in class tell them you are giving fewer HW exercises so they have time to read the 2nd example in the book (and be sure it will help them with the HW).
- Little by little, keep increasing the expectation of what they will read, even having them read ahead at times to prepare for the next day's discussion. And then let those who have read ahead play a significant role in your presentation. Seeing that other kids know stuff they don't helps get the non-readers on board.

You know you've achieved a level of success when, later in the year a kid who has missed a week of school doesn't ask, "Did I miss anything?" (No, you weren't here so we cancelled class...) or threaten, "I'll come in every day after school so you can teach me everything." Instead you may hear, "I read the chapter and I have a couple of questions." Gotta love that!

-- Dave Bock