Students whose test scores improved dramatically over the course of the semester have offered some strategies that they found helpful. For each of the following, the number in parenthesis indicates the absolute change in test score from the 1st exam to the 2nd and/or 3rd exam. For example, “+28%” means the student’s 1st and 2nd exam scores might have been 70% and 98%.

People vary with respect to what types of study methods are most effective, so some of these suggestions may be helpful for you, others less so. These strategies relate specifically to gross anatomy, but the general approaches are likely to be relevant for other courses as well.

(2004; +28%)

For the first exam I didn't realize what to expect. I didn't spend as much time focusing on function as I did for the 2nd and 3rd exam. On studying for the 2nd and 3rd exam I questioned myself as to what every individual thing that we were learning did and how it tied into the whole scheme of things. In addition, as I studied, anything that I had forgotten about or didn't know very well the first time, I went back and researched again. This was mostly to help myself because I didn't do a very good job of this for the first exam.

I think seeing a bigger picture and how everything ties together helped me do a much better job of making assumptions about what I was seeing.

(2004; +24%)

Actually, I changed a lot of things, and tried a lot of different things, some of which worked, and some of which did not. Here are all of the things I can think of, but in all honesty, what it comes down to is I worked my tail off, I have never studied so much for anything in my life.

- I started out reading the dissection guide each night, and taking notes on what I read, that helped, but took too long and wasn't very useful for studying later,
- so I switched to reading each night and making flashcards. This was more helpful, but took more time.
- I ended up going through each night and highlighting the bold words, and finding them in the figures when possible.
- I made flash cards, but only for what arteries and nerves innervated or supplied, which took much less time than flash cards for each and every bold word.
- I looked up muscles that were supplied and innervated by bolded nerves and arteries, and named what each supplied each time I identified it in lab.
- I read less Dyce. For the first exam I read all of the assigned reading, but for this one, I read only the parts that I was confused about.
- I bought big Miller and studied arteries and nerves from the pictures in it.
- I used Dr. Wilson's website and the university of Minnesota's anatomy website to study from.
- I and a classmate made a list of the arteries and what they supplied.
- I went into the lab 3 days a week for 1-3 hours for the 3 weeks before the test, then 2 days before I went in for 5 hours with a list of every bold word, and made sure I could identify each one. Going in so far prior to the test with a classmate was far more effective because there was less noise in the lab and we could use the best specimens, while studying just before the exam is loud and tiring and the atmosphere is stressful.
- I and a classmate asked each other questions from an old exam 3 days before the exam.
• The night before the exam I went over an old exam and made sure I could answer everything, I went over things I had had trouble with one more time, and I went to sleep by 9pm.
• Probably the most useful thing I did was to pair up with another student to study. I study with someone who is doing very poorly and is unsure if they will be returning next semester due to grades. We studied together for the 3 weeks leading up the the exam, and because it took him longer to learn things, it forced me to go over things again and again, and for me to understand them so I could explain them to him.
• Though counter to any study habit tip I have ever heard, I ate more pizza and chocolate and drank more caffeine! 😊

(2004; +30%)
I took your advice and did many, many drawings of the muscles, arteries, veins, and vicera. And I do believe that is what helped me to do better on this exam. Granted, they were no works of art, just schematic and I also wrote the names of all the muscles/arteries/nerves/organs as I went and checked the list with a list I compiled from all the bold phrases in the Dissection Guide. If I was missing a term, I studied it in the text (both DSW and the guide) and tried it again. This really helped me focus on the stuff I didn't know, rather than rereading the stuff I already did know. I'm sure this helped because I didn't spend any additional time in the lab, or with fellow students, and I also did not change my personal habits of little to no sleep and trying to run a large farm that is 8 hours away with to many high-strung thoroughbreds.

(2004; +28%)
I did quite a few things differently on this test. I started studying and making very comprehensive lists immediately after the last test because I knew I hadn't done well. These lists included connecting nerves, vessels, supply and any other details I felt might be important. Then the week before the test I completely started making new lists, less comprehensive and more to learn the terms. I probably got a little more sleep before this test because I felt like I knew the information (ex. I actually got more than 2 hours the night before) :) I have previously found that I don't study well in groups so I went back to this formula as well.

(2004; +20%)
(paraphrase) It was mainly a matter of more time given to studying, after numerous distractions early in the semester related to moving, purchasing a home, etc.

(2004; +30%)
(paraphrase) Initially learned only the names first in the lab, with the idea that I could go back later to fill in more information about the structures, such as location, spatial relationships, and function. After the first exam I switched to concentrating on learning as much as I could about each structure as we identified it in the lab. This forced me (and the group) to slow down, and provided more context for things as we learned them. Also, I’m a very visual learner. I started out just listening to whoever was the reader, but then I found it was much more helpful to actually read for myself as well during the lab sessions. Lastly, I did not study the night before the exam and got a good night’s sleep – in contrast to the night before the 1st exam!

(2006; + 12 %):
Instead of waiting until the last week or two before the exam to study, I started studying with a group about three weeks before the exam. We put in about an hour or so every day (more on the weekends), so we were familiar with most of the material and didn't need to cram as much right before the exam. I also tried to use the time in lab wisely; including reviewing old material when we had the time.

(2006; + 10 %):
The first test was heapin’ helpin’ of humble pie for me. That was the worst I have ever done on any exam. One of the biggest things was one of your suggestions, read and think about the test question before looking at the specimen. Not making promises but I hope to bring it up more on the next one... Good to have goals, even lofty ones.

(2006; + 16 %):
First of all I didn't spend enough time in the lab for the first exam. One of the things I did for the second exam is I tried to spend a couple of hours, 2-3 times a week. On the week before I came in on the weekend and took advantage if the last available lab day on Wednesday. My group and I also the weekend before went through all of the terms to be sure we hadn't missed anything in our prior study sessions. This took a lot of time, but was worth it because a couple of the terms we had missed did turn up on the test. The other thing I did was that I tried to roughly draw out the path of the nerves and arteries to know where they went, and what branched off of them. This really helps with the abdomen where you can't really see the pathways. I know from previous experience that I don't do well with note cards and lists so I used scans from the book and pictures from http://vanat.cvm.umn.edu/carnLabs/ to help jog my memory when I was studying out of the lab.

(2006: + 33 %):
To improve my exam score I found it helpful to set aside an hour every day to review what I had learned from the day and draw out the structures using colored pencils. They were not the best drawings but they worked in my head. Then I would go into lab outside of our scheduled time approximately two times a week for about 2 hours and review what we had learned for the week. Then the week prior to the exam a group of us went in everyday and read through the entire dissection guide of material for the upcoming exam and reviewed any misconceptions. I also began studying with people outside of my assigned lab group which allowed me to look at the material from a different perspective.

(2006: + 16 %):
I improved my score on the second exam by going over the material much more thoroughly with attention to details. I also made a lot of notecards. I drilled myself by saying things out loud. I also drew a lot of pictures. I wrote things down with a white board over and over. I also spent a lot of time in the lab outside of class studying. I studying with my lab partners this time a lot more. We quizzed each other during these sessions and helped to answer each others questions. I used the carnivore dissection site a lot when I was studying at home. I also started studying early and tried to keep up with the material as we went along. I also looked at the old exams a lot more than I did for the first exam.

(2006; + 20 %):
I did horrible on the 1st anatomy exam, but managed to improve my grade on the 2nd and 3rd exams. I’m glad that I did better with the class overall but I remember how horrible I felt when I first got my grade back. For those who might go through similar experience, I’d like to say it’s not the end of the world and it’s possible to improve the grade. And it feels great when it happens. So here are some study strategies that I tried and that worked well for me:

1) Sleep well before the class: I tried to sleep at least for 6 hours, ideally 7-8hrs, the nights before the anatomy labs. I feel this was the best contribution to improving my grade in that I could focus more on the lab and engage in the dissection and in the conversation with other students and faculties.

2) Spend more time in the lab: I spent more time, say at least twice weekly, and caught up with the material covered during the week.

3) Group study: I was lucky to have good friends in class. I tried to diversify the group whom I worked with because everyone had unique and very insightful ideas.

4) Read the Dyce: some said Dyce didn’t help their study much, but for me it was a great source of information that described the anatomy with clinical/functional relevance.

5) Focus on functions: I tried to shift my focus more on functions than on just memorizing the terms. Many questions in the exams were concerned with what some structures did, how they worked, or how they are clinically important. Group discussion, reading Dyce, asking questions to the faculties, etc… those things helped with this respect.

6) Don’t cram. Get a good night sleep before the exam: It’s the fact. Nothing more need be said.

(2009, +13%)

After the first exam I started devoting a significant part of my study time to anatomy. I was still studying for my other classes so that I could keep my scores up where they needed to stay. I made sure I spent 3-5 hrs a week in anatomy lab as well. A significant part of Sundays was also devoted to the lab (~6 hrs). I started going into the lab to review current structures right after the last test instead of waiting until a few weeks before the upcoming test. The sooner I got a handle the on the material, the more confident I felt about it. Knowing that the test would be based on cadavers, I wanted to make sure I was comfortable with identifying everything on a cadaver instead of focusing on the book’s pictures. The book is nice and organized, but that is not always how the cadavers look. I would draw pictures from the cadavers while looking at the book for comparisons. Since not all cadavers are the normal, my drawings would stay based on the normal representation instead of an abnormal one. I would label “landmarks” in my drawings to aid me in identification (ie: proximal caudal femoral artery crosses over the pectineus so I would include this muscle in my sketch). I wouldn’t draw every little detail. I would only focus on the ones that stood out to me or that seemed important. Drawing from memory also helped me work on what my weak areas were. I made sure I studied with more than one person, but not necessarily at the same time. For me, I didn’t feel that I accomplished much in a group. I took advantage of my lab time with my cadaver partners even if they sometimes didn’t feel like going over structures. I would use lab time as study time after the dissection was done. Free time is very limited after you get home from being in class all day so you have to be efficient in how you use it. Don’t waste time on studying things you already know. I would do a full review on the weekends, but really focus on things that needed work during the week. Apart from studying, I made sure I went out and did something fun on Saturday. If I found that there was something that wouldn’t stick no matter what, I would make a flashcard and quiz myself in random spots (waiting in live
at the store, on the bus, etc). I had a stack of flashcards I carried around with me that would slowly shrink down and disappear by test week.

Another thing that really helped me may or may not be what you are looking for, but it might help someone else who is having similar problems.

I was going through a tough time in my life outside of vet school. [one of our dogs euthanized shortly after school started & living apart from my spouse] Living alone was something that really affected me and the grief only made it worse. A lot of my classmates pushed me to see [the CVM counselor] and I feel that it helped me sort out things so that I could focus on school. Recognizing that something was wrong and actually making a move to fix it was one of the hardest things I have done since I am a private person and dislike sharing my feelings/problems with anyone. I knew I had to do it since it was affecting my performance at school and disrupting my sleep. Not getting enough sleep is like not breathing. You have to have it. I didn’t realize how much I was affected until I started talking about it. I was able to readjust my attitude so that I could improve myself. Getting help is not something to be ashamed of. It would be foolish to not take advantage of the services being offered. Going to one meeting is not a waste of time since they typically only last about an hour and it made me feel much better afterwards. There is no obligation and the number of meetings is completely up to the individual.

(2009, + 10%)
For the first test I had spent a lot of time going into lab, for the second test I cut down on the amount of time I spent in lab, going in 2 or 3 times a week after class, usually with other people, but sometimes alone, and spent from one to two hours at a time there but usually no more, (I found it helpful to have prepared ahead of time, drawing out the structures etc. so my lab time was efficient and also more of a review of where they were on the actual cadaver, repetition with other people - I usually study best alone but I found it helpful to go into lab with other people, and not late at night when lots of other people were there but often right after class. I then went home and reviewed bold terms in the Dissection guide paying attention to descriptions of each (I spent too much time focusing on just muscles for the first test and not enough on joints and ligaments, so for the next test I made sure to cover EVERY term and spend adequate time on EACH). I found it very helpful to draw out all the branching of the vessels and nerves and then by each one to write down what it supplied. I bought the Virtual Canine Anatomy program and that helped me significantly for reviewing certain structures such as the heart. I went through all the structures on the Virtual Canine Anatomy DVD before going back into lab, and when I did, I found I knew the structures on the heart. (Disclaimer: the program did not replace my going into lab time and for many of the vessels it was more helpful to draw them and then go into lab and see them in person). I also read Dyce weekly, although I didn't spend tons of time on it, and skimmed through some parts I found it quite helpful especially when it came to understanding FUNCTION (very important to understand the BIG PICTURE!!!) and a more encompassing perspective of anatomy as a whole. I went over old tests, and paid attention to the lab section that just had the words on it, I then tried to think of where that structure was, how it was related to other structures and tried to ask myself questions that would give that answer. I also spent time going over the written part, and paid special attention to the questions I didn't know, especially those that came from Dyce, that way when I reviewed Dyce those sections popped right out to me. Also helpful were Dr. Sprunger's online practice quizzes. Lastly, and most importantly, I
stressed out less about this exam (it worried me for sure, but I tried not to let it bog me down), I still made time for myself when I needed it, I exercised more, slept more, drank less caffeine, and went to bed at 9 or 10 the night before the test and slept at least 8 hours. (For the first test I only slept 4 hours, drank too much caffeine, didn't exercise the week before, and didn't sleep much either that week).

(2009, + 10%)
The major thing that I did differently in studying for the second test was that I came into the lab nearly every day from a couple weeks before the test up until a few days before the test with a few classmates that I work really well with and we quized eachother, usually for no more than 30 minutes at a time. For the first test I almost solely studied alone. The second test is pretty overwhelming with the amount of information in it, but because I was solid with one part and my classmates were solid in other areas, we were able to break the information down into smaller parts and help eachother. It also motivated me to make sure that I really did know what I was talking about since I didn't want to mislead my friends.

Other than that I didn't study any more or less, just more intelligently. Notecards don't work for me, so I didn't waste my time making them for this test. I like flow charts, so I made them instead. Its my nature to focus on minuscule details, but this time I made a concerted effort to look at the big picture, and that helped me think through any questions that were on the test that I didn't immediately know.

(2009, + 10%)
What I did differently for exam 2:
1. Drew the arteries and veins completely out after each lab then made a master copy.
2. Reviewed lecture power points 2 weeks before the exam, which allowed me to realize the emphasized material.
3. Week of the exam used dry-erase board to draw and write out everything I knew. I feel that this was key...
4. Taught others that needed extra help during the review week.

*Stay an ACTIVE learner...

(2009, + 14%)
In preparing for the second exam, I don’t believe I studied significantly more although I did change my approach. I spent more time with the anatomy book- for the first exam I spent a lot of time with the cadavers, but I believe a more balanced approach was key (for me). Additionally before the first anatomy exam- I spent the weeks leading up to the exam studying regularly- but the week of the exam I slacked off a lot- but learned this stuff needs to be fresh in your mind! For the second exam I spent time in the weeks prior, but kept up the studying during the week of the exam. I learned you cannot very well cram for these exams- it’s just too much info, but you need to keep reviewing it up until the day before the exam, otherwise it seemed to slip away a bit.

(2009, + 21%)
I changed quite a few things about my study habits, one being my attitude. Before the first exam, I felt like I just couldn’t catch on like all the other students seemed to be doing, and rather than asking for help, I withdrew, embarrassed that I didn’t know as much.

For the second exam, I decided to throw away any embarrassed feelings that I might have and ask questions. And it turns out, I was able to help others as well. If I could give any real good advice at all, it is that you shouldn’t compare yourself to others in the class, because we all remember different bits of information and learn things in different ways…

-I needed a way to focus, so as I read through Dyce and Anatomy of the Dog, I made myself my own flow chart with what I thought was the most important information. It took some time, but definitely helped me to remember what I was reading in a manner that I could understand better. I also started using this method for other classes.

-I had a list of all the bold terms, and spent more time in the lab identifying them. Before the first test, I didn’t spend nearly enough time in the lab…I knew what everything was, but couldn’t necessarily identify them in dogs I hadn’t seen before.

-I used a ppt from the student resources folder that had pictures on it, as well as questions about the material. It was a good way to use recall memory instead of just reading the book. So then, realizing how much the questions helped me, I started typing out my own questions to ask myself as I read through the book.

-I drew pictures of arteries and made a flowchart of all the pathways—this was very beneficial!

-I also had a taperecorder, and when the concept of something was difficult for me to grasp, I made myself explain out loud what I thought the concept was, as if I were teaching a class, and usually reasoned it out for myself. I felt a little crazy doing it, but it definitely helped!

-I branched out and found other people to study with—they had other ways to remember details, and it was good to gain different perspectives on difficult material. Plus, I made new friends, and we actually had fun studying! well sometimes…:

And finally, I realized that I had to time manage better if I was going to make it…so I studied like crazy, took more breaks to exercise, and drank more caffeine than I ever have!

(2009, + 14%)

For the second test I started going in after hours much earlier, going in every weekday starting about 2 weeks before the test a few hours a night to student with a group of students. Studying in a group also helped me a lot, for most of the first test I studied alone. Also, I personally found the arteries, veins, nerves and organs just easier to remember and understand than the muscle and skeletal material and so had an easier time studying it. Drew a lot of diagrams, such as arterial branching and nerve patterns. I also came to recognize that most of the learning for anatomy will be done outside of class with class being a time to ask questions for the instructors that came up when studying after hours. Hope that’s helpful.