A Student Guide for How to Succeed in an Active Learning Classroom
Stat 216: Introduction to Statistics

What is active learning?
Active learning is where students participate in the classroom rather than passively listening and watching a lecture. Active learning can take many forms from as simple as the instructor asking the class a question to foster class discussion to student-led group activities.

Why do we use active learning?
Education researchers have done extensive research into how students learn. A meta-analysis of research in active learning published in the *Proceedings of the National Academy of Sciences* (Freeman, et al., 2014) determined that active learning increases examination performance and decreases failure rates in STEM (science, technology, engineering, and mathematics) disciplines. In fact, the effect size is so large that if this were a clinical trial for a new drug, the study would need to be stopped since it would be unethical to continue giving the old drug to patients.

What can you do to succeed in this course format?
If you haven't taken a course that uses active learning, it can be frustrating and daunting at first. Be prepared to be uncomfortable, and try to stay open to trying new learning styles. Some tips for succeeding in Stat 216:

- Read the RAT questions *before* you complete the required reading and videos. Cognitive scientists have found that if we test ourselves on concepts before learning them, we will better retain the content.
- Don't just passively watch the videos and read the textbook. Take notes as you read/watch! At the end of each section, pause and quiz yourself on what you just learned. If something doesn't make sense, write down questions that you can ask your instructor during class.
- Don't try to multitask during class – focus on your own learning. Even just having your cell phone out and next to you is distracting (to both you and your neighbors).
- Be open to working in groups, even if it doesn't seem comfortable at first. Check your work with each other and discuss the problems as a group. Trying to verbally explain a concept is much different than thinking about it.
- After each class, take a few minutes and write down the main points you learned from class that day. Re-write and organize any notes you took in class.
- Make use of all the resources available in the course: go to the Math Learning Center and check your work with the exploration solutions available in the MLC, visit your instructor's office hours with written questions about the material, attend the exam review sessions, work on odd-numbered exercises in the book for practice (solutions are in the back of the book).
- When working on assignments outside of class, try all the problems on your own before working in groups. Exams are taken individually, so you need practice working on problems alone. This also gives you a better sense of what topics you do and don't fully understand.

Advice from Former Stat 216 Students

- Read the material before class. Participation with background knowledge really drills it into your head thoroughly.
- Make sure you read all of the sections before you go to class. If you do this you will already have an idea what is going on during class and the concepts won't be as hard to grasp.
- Make it a PRIORITY to go to the MLC to do assignments and take quizzes.
- Go to class EVERY day!
- Study hard and don't let yourself fall behind. Ask all questions you may have.
- Take notes on the sections as you read them, and then add notes for that section when you go over it in class.
- Do not take the book for granted. Read the chapters and watch the summary videos. The book is expensive for a reason!
- Half the battle is showing up. Show up ready to learn, put in the time outside of class, and you will do well in this course.
- Get a group together that you can study with and do assignments together. Having a group to hold me accountable and help me definitely saved my grade.
- Make sure you stay up-to-date on the reading and understand what you are reading.
- Attend class regularly! The book can be fairly confusing and it is next to impossible to find pertinent help for STAT 216 online, the best help is to show up to class. Don't try to cram for the exam, go to all the available exam study preps and study sessions. Also organize your note card for the exam well, different colors are useful to make it easier to find the information you need.
- 1. Buy the book, Don't try to share with your friend or roommate 2. Stay up on assignments and quizzes. 3. Do practice problems from the book until the concepts click
- Make sure to go to the study sessions before tests.
- Try to take the extra few minutes to read the chapter before completing the RAT. This will help, not only with overall comprehension of the material, but also with being engaged and focused in class.
- Ask questions. If anything doesn't make sense don't be afraid to go to the Math Learning Center, your teacher's office hours, or ask a classmate to answer your question. You need to understand everything from the beginning in order to succeed in the class so ask away.
- Be prepared to spend at least six hours a week studying.
- Be prepared to work. This is a very challenging course.
- Spend an hour a day reviewing the material from beginning to end. Don't wait until your halfway through the semester to start to try and understand the material.
- Study hard and complete every piece of homework with dedication and give yourself enough time to complete it.
- Make sure to take notes when reading the book chapters for RATs, it will make the class much easier when you have the information written down ahead of time.
- My advice would be to go to class always and to read. Reading is key to understanding. I think my other advice would be to get help when you first don't understand something because it will only accumulate and get way harder.
- Take as many notes on context that you can.
- Go to the MLC when doing the quizzes and homework especially in the beginning of the year.

- When writing answers, pay attention to wording and put everything in context. Also, take advantage of the study sheets for tests. If nothing else, they're a good opportunity for review.
- Stay organized in the course, separate notes from exploration work and keep a list of things to do each week. It makes it easier to go back and study for tests and find the information you need for the quizzes each week.
- Utilize the Math learning center for quizzes and assignments because they don't tell you the answer, but they explain and help you understand the content. I never ever used it the first time I took stats and it has helped a ton this semester. Another piece of useful advice I have is, make a friend in the groups that you're put in, so you can study together. That has also helped me. It's also helped me with my shyness.
- Take many notes, especially when the instructor goes over explanations or interpretations of confidence intervals, p-values, or anything else similar to that. Also, don't be afraid to ask questions if a subject is not clear to you.
- Make sure to take notes while reading the sections in the book.
- Read material in advance class and have apps up and running on laptop.
- Class attendance is very important for this class, it will be hard to learn strictly out of the book. Also, the review sessions before each test are extremely helpful.
- Read the book and gain a decent understanding the material before you go to class. You have to think differently in Stats 216 than any other math related class and having that basis before attending class is super important.
- I would say to make sure you set reminders for the rats and actively participate in the class because it really helps.
- Master the basics of the 6 step process and you will be relatively prepared for the rest of the class. Focus more on understanding than memorizing. This class is conceptual and you will be better off if you have a deeper understanding of the content.