

STT 3820-101 – Statistical Methods I – Spring 2010

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<http://www1.appstate.edu/~arnholta>
- Course Materials:** De Veaux, Velleman, and Bock (2008). *Stats: Data and Models, Second Edition*. Pearson, Boston.
- Student Access Card: Must be purchased on-line
(<http://www.coursecompass.com>). Cost for an access code is \$70, but if you used CourseCompass for STT 2810, your original account should still work.
- Course Compass ID:** [arnholt44286](#)

This course is being taught with the course management system CourseCompass. Homework, quizzes, and tests will all be administered through CourseCompass. Assignments, course objectives, and other material pertaining to this class can all be found by logging into the course [arnholt44286](#). Objectives for this course can also be found by clicking appropriate links on my web page.

Grade Composition:	Homework assignments (~15)	20%
	Quizzes (~15)	20%
	Practice Tests (2)	10%
	Tests (2)	30%
	Final Project	20%

Quizzes will be on course compass and may not be done until the homework for the chapter is completed with a grade of 90% or higher. You will have three attempts to score well on your quizzes, so do not guess. If you score poorly on your first attempt, figure out why...do not try to "guess" a better grade. Quizzes must also be completed by 8 a.m. the day the next chapter will be covered. The highest grade you achieve on both homework and quizzes will be recorded in the CourseCompass grade book. For each chapter covered, with the exception of chapter one, there will be a homework and quiz for that chapter.

Tests: The tests and final will be administered through course compass. You may bring 93.5 in² of notes to any test (8 ½ by 11 inch paper's front or 5 ½ by 8 ½ inch two sided, for example) as well as your calculator. Bags, backpacks, notebooks, etc. should be off your work area and out of the aisles. Tests are timed by course compass and must be submitted before time runs out, or a zero is awarded. You must complete each test within the allotted class period. Extended testing time will be provided only for students submitting documentation to me from the Office of Disability Services. If you find it difficult to complete a test within the allotted time period, you have not mastered the material at the level necessary to prepare you for the test. The last test may be during the last week of classes. If you are unable to come to class for a scheduled exam because of an absence excused by a University directive, the final will count for those points (that is, NO MAKEUPS). The final exam will be administered according to Spring 2010 Exam Schedule available at

<http://www.registrar.appstate.edu/calendar/Spring2010ExamSchedule.html> .

Undergraduate Catalogue Description: STT 3820 - A continuation of STT 2810 or STT 2820. A study of parametric and non-parametric statistical methods and inferential procedures. Topics include introduction to methods of data collection such as simulation, surveys and experiments; single-parameter inference for means and proportions; techniques for comparing two distributions; error rates and power; inference for simple linear regression models and multiple regression least squares models; one-way and two-way analysis of variance models; and contingency table analysis. Nonparametric alternatives are presented for many methods in the course when the assumptions for parametric methods are not met. Emphasis is on a non-theoretical development of statistical techniques and on the interpretation of statistical results. Statistical software will be utilized in analysis of data. Prerequisite: STT 2810 or STT 2820 or equivalent. (NUMERICALDATA; COMPUTER) (ND Prerequisite: passing the math placement test or successful completion of MAT 0010.)

Attendance Policy: As stated in the ASU Undergraduate Bulletin, students are expected to attend all course meetings and are completely responsible for their own attendance. There are 28 course meetings in the Spring 2010 semester, plus a final exam period. Any student who is absent for any reason is completely responsible for all material covered in class, including (but not limited to) lecture topics that are not included in the textbook, handouts, announcements, and assignments.

Classroom Behavior Policy: Each class period is fifty (75) minutes long. Students are expected to be on time and not to leave early unless the instructor has been given prior notification. Every student should be prepared to participate at the beginning of class and should not begin to pack up at the end of the period until the instructor is finished. Any conduct that disrupts instruction (e.g., cell phone use, unnecessary chatter, computer use other than class work) is disrespectful to and disruptive of both other students and the instructor. First offenses will be dealt with by the instructor. Subsequent behavior issues will be referred to the Office of Student Conduct. As a courtesy to everyone, turn off all cell phones and beepers during class. Failure to do so may lead to confiscation or prohibition of such items for the duration of the course as per ASU policy.

Academic Integrity: Academic integrity is a very important part of a college education. All students are expected to be familiar with and to abide by the ASU Code of Academic Integrity. The Code states that by applying for admission, students attending Appalachian State University agree to the following (<http://studentconduct.appstate.edu>):

- (1) Students will not lie, cheat, or steal to gain academic advantage; and
- (2) Students will oppose every instance of academic dishonesty.

Infractions will be dealt with immediately and strictly according to the established ASU policies (<http://judicialaffairs.appstate.edu/>). Possible violations include (but are not limited to): cheating; fabrication and falsification; plagiarism; abuse of academic materials; and complicity in academic dishonesty.

Putting your name on any work you submit for grading (or logging into CourseCompass with your ID) is considered to be verification that you have complied with the Code. With regard to collaboration in this class, you may discuss computer lab assignments and the homework problems with other students, tutors, or math lab personnel. Quizzes and/or exams must be taken individually with no outside assistance.

Disabilities: Appalachian State University is committed to making reasonable accommodations for individuals with documented qualifying disabilities in accordance with the Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973. Those seeking accommodations based on a substantially limiting disability must contact and register with The Office of Disability Services (ODS) at www.ods.appstate.edu or 828-262-3056. Once registration is complete, individuals will meet with ODS staff to discuss eligibility and appropriate accommodations.

Expectations: Prior to coming to class, you should read the indicated sections/pages listed in the reading assignment. To maximize your understanding of the class activities, you should take notes on the reading material prior to coming to class, paying particular attention to the objectives listed for that section. To do well in the course, you **MUST** read the material prior to coming to class, paying particular attention to the stated objectives. To help you in the course, I have explicitly stated course objectives. As a minimum, you should read and attempt the first half of all assigned problems prior to coming to class. We will use class time to discuss challenging areas of the reading and homework problems.

If you have not read the assigned sections and attempted the assigned problems, you will more than likely feel lost, be very confused, and have a terrible experience in this course. I DO NOT WANT THAT TO HAPPEN! You should expect to spend two hours outside of class for every hour you are in class. If you are not comfortable or have not done well with mathematics/statistics courses in the past, you will need to spend more than two hours preparing for each class meeting. If you do not have the time to dedicate to this course, please DROP now and take the course when you have the time. Please, do yourself a favor and take this course only if you have the time to devote to the course. I am here to help you through this material, and I want to see you succeed. I realize that many students work during the school year to finance their education; however, that fact does not change the requirements of this (or any) course. Budget your time accordingly, and pace yourself so that you can keep up with the course and complete all your work on time.

General Policies:

- ☺ Turn off cell phones, beepers, etc. when entering the class.
- ☺ DO NOT use the computers to play games, send email, etc. during class! If I see you using the computers in an inappropriate fashion you will be kicked out of class.
- ☺ Late work is not accepted for any reason.
- ☺ Projects that are to be turned in must be typed and answered in complete sentences with all supporting code and graphs presented. A word processor should be used to do final reports and all graphs should be done in R. You will be doing extensive cut/paste operations.
- ☺ Missed work earns a zero except for University directives. If you will be absent on a test date, no make up work will be given.
- ☺ You are responsible for all content and work if you miss a class. Be sure to contact me *before* any class you must miss by either phone or e-mail. If I do not know why you are missing, no accommodation of any type is available to keep you from earning a zero on whatever is done during class that day. CONSIDERATION COUNTS!
- ☺ Please make an appointment to come to office hours. This allows me to make sure that I will be free and available when you want to come. If you have not made an appointment to see me, I may or may not be able to help you right then.
- ☺ The Academic Integrity Code is in force at all times.

Guidelines for Success:

- ☺ Attend all classes. Be ON TIME with readings performed and homework complete.
- ☺ Ask questions on problems as soon as you need help. It is much easier to fix misconceptions or problems in understanding when they occur rather than days or weeks later.

- ☺ Expect to read all material at least twice: once before it is covered in class and once after at a **MINIMUM!** It is also helpful to have time to reread before a test.
- ☺ Complete all homework problems.
- ☺ Save the scripts you write/use to solve your homework problems.
- ☺ Take notes in class with Tinn-R. Scripts are provided for solving most problems, and annotating these scripts during class is an effective note taking technique.
- ☺ Visit office hours with questions on at least specific sections. It is your responsibility to know what sort of problem or what concept is giving you trouble. Be sure to have read all of the text, handouts, and lab manual that cover your area of difficulty before you come to see me.
- ☺ Become familiar with the software. Keeping a running reference sheet of commands/menus and their uses best does this.
- ☺ Learn terms as they occur. Statistics has its own language in some respects, and a running definition/formula sheet will be most helpful.
- ☺ **REMEMBER:** Your teacher is here to **HELP YOU!!!** We want to work together to have each one of you do well this semester and learn much useful information about statistics. If you put in the time to work problems, ask questions, and visit the stat lab and me **OFTEN**, you should have no serious difficulties.

General Notes:

Read the pages that are linked from the site: <http://www.how-to-study.com/> before coming to class for the next period. Do this **BEFORE** reading any statistics.

<http://www.cse.buffalo.edu/~rapaport/howtostudy.html> about how to study is also a good (an amusing) resource.

Your attitude will greatly affect your ability to succeed in this course. It will also affect your classmates' attitudes in class. Always consider this fact carefully before you speak or act. If your comments or actions in class are deemed by the instructor to adversely affect other students' attitudes, they are considered disruptive.

Also considered disruptive are (1) conversations among students while information is being presented, (2) rude comments or remarks directed toward other students or the instructor, (3) raised voices or confrontational comments, and (4) failure to follow instructions given by the instructor.

If your actions in class are deemed by the instructor to be disruptive and you do not cease and desist from those actions immediately upon request, you will be asked to leave class. (Disrupting a class is unlawful in North Carolina.) If you do not comply, the police will be called to remove you. You may be permitted to return to future class meetings, but only after consultation with the instructor. Additionally, you may be required to arrange a conference with a university administrator before returning to class. Continued disruption and/or violations may result in an "F" for the course and your permanent removal from the course.

HOW TO STUDY STATISTICS reprinted from
<http://pegasus.cc.ucf.edu/~ccutchin/study.htm>:

Many students have trouble learning statistics because they never develop the particular study habits that are conducive to success in statistics. If you practice the following suggestions, they should prove invaluable to you.

1. **READ CAREFULLY AND DELIBERATELY.** The way in which you should read in statistics is quite different from the way you may read a history book, newspaper, or a novel. In statistics, you must read slowly, absorbing each word. It is sometimes necessary to read a textbook discussion or problem **many times** before it begins to "make sense" to you. In some types of reading, such as a novel, it is desirable to skim and read rapidly, because there are usually a few thoughts "sprinkled" among many words. However, in reading statistics, each word or symbol is important because there are many thoughts condensed into a few statements. Keep in mind that the little words mean a lot in statistics.

2. **THINK WITH PENCIL AND SCRATCH PAPER.** Always have pencil in hand and scratch paper ready and use them when you read and study statistics. Test out the ideas on paper that the authors are discussing. When they propose a question, try to answer it before going on. Even though an example may be worked out completely in the text, work it out for yourself on scratch paper. This will help to clinch the ideas and procedures in your mind before starting the exercises. After you have read and reread a problem carefully, if you still don't see what to do, don't just sit and look at it. Get your pencil going on scratch paper and try to "dig it out. If, in attempting to solve a problem, you have nothing written on paper, then, generally, you have not yet exerted enough effort to justify seeking help.

3. **BE INDEPENDENT.** Try to complete each lesson without assistance. If you seek help needlessly, either from your professor, a classmate, the solutions manual, or the math lab, you will not gain the maximum benefit from your work. It takes exercise, you know, to become strong. You cannot learn statistics through someone else's exercise. However, you must ask questions when necessary. Sometimes little things cause considerable confusion. Do not be afraid that your question may sound "dumb." The only "dumb" action is to fail to ask about a topic that you have really tried to grasp and still do not understand. Some people seek help too soon and some wait too long. You will have to use good common sense in this matter.

4. **LISTEN IN CLASS.** Many of the finer points, fundamental principles and modes of thought will be developed in class. You must pay careful attention to these activities in order really to understand what is going on.

5. **PERSEVERE.** Do not become frustrated if a topic or problem may completely baffle you at first. **STICK WITH IT!** An extremely interesting characteristic of learning statistics is that at one moment the learner can feel totally at a loss, and then suddenly have a burst of insight that enables him to understand the situation perfectly. Learning is not an "all" or "nothing" process! If you don't seem to be making any progress after working on a problem for some time, put it aside and attack it again later. Many times, you will then see the solution immediately even though you have not been consciously thinking about the problem in the meantime. There is a tremendous sense of satisfaction in having been persistent enough and creative enough to independently solve a problem that had given you a great deal of trouble.

6. **TAKE TIME TO REFLECT.** To learn statistics well, you must take time to do some reflective thinking about the material covered during the last few days or weeks. It takes time for some ideas in statistics to "soak in." You may have to live with them awhile and do reflective thinking about them before they become a part of you.

7. **CONCENTRATE ON FUNDAMENTALS.** Do not try to learn statistics by memorizing illustrative examples. You will soon become overwhelmed by this approach, and the further you

go the less successful you will be. The field of statistics is based on a surprisingly small number of fundamental principles and definitions. Most of these must be memorized. But if you concentrate on these fundamentals and try to see how each new topic is just an application and/or extension of them, very little additional memorization will be necessary.

8. **BE NEAT AND ACCURATE.** These are habits that will save you many "headaches" In any field of endeavor. Most people must deliberately practice neatness and accuracy before they become a habit. Keep your work organized. Have a special section in your notebook for statistics. Keep each assignment (along with old tests, notes, etc.) in a centrally located place so that you can refer to them when necessary.

9. **TAKE TIME TO DO YOUR WORK AND DO IT ON TIME.** You must do your assignments regularly and make up the work missed when absent. Do not wait until the last minute to do your work and then rush through it. If you spend just enough time on your lesson to get the "answers" and do not take time to really understand the underlying principles, you will soon become confused. Statistics can be enjoyable as long as you are "on top of it" and understand what is going on; otherwise, it is very frustrating.

Learning statistics is not an activity for the intellectually lazy. It requires a strong, steady effort. There is no other successful way. Neither is statistics a spectator sport, you must become very actively involved. Do not expect to sit idly by and watch your professor do the work. This may keep the professor in good condition, but it won't do you much good.

There will be no extra compensation given for working hard or conscientiously doing your homework. This is something you are expected to do as a matter of course. The "reward" you get will be the statistics that you learn.