

Introduction to Statistical Methods — Stat 2000, Section 001, Fall 2016

Instructor: Dr. Jürgen Symanzik
Office: AnSc 313
Phone: 797-0696
FAX: 797-1822
e-mail: symanzik@math.usu.edu
Web: <http://www.math.usu.edu/~symanzik/>
http://www.math.usu.edu/~symanzik/teaching/2016_stat2000_fall/stat2000.html
Office hours: MWF 10:00am – 11:00am and by appointment.

Classes — Lectures & Rooms: Mo 8/29 – Fr 12/9, 2016:
MWF 8:30am – 9:20am: Eccles Science Learning Center 046

Recitations — Lectures & Rooms: Each Tuesday and Thursday, except Th 10/20 (Fr Lecture instead) and Th 11/24 (Thanksgiving Holiday).

- Section 501, TR 7:30am – 8:20am, Lillywhite 006, Todd Partridge.
- Section 502, TR 9:00am – 9:50am, Engineering 206, Carla Brookey.
- Section 503, TR 10:30am – 11:20am, Engineering 206, Todd Partridge.
- Section 504, TR 12:00noon – 12:50pm, Technology 108, Carla Brookey.
- Section 505, TR 1:30pm – 2:20pm, Huntsman Hall 160, Carla Brookey.

Office hours, and office locations of the recitation leaders will be posted in Canvas. In addition to the recitation lectures, additional help (office hours and exam reviews) will be provided by Savanna Budge, an Undergraduate Teaching Fellow. Further details will also be posted in Canvas.

Text: *Introduction to the Practice of Statistics, Seventh Edition*
by Moore/McCabe/Craig (2012), W. H. Freeman and Company, New York.
Order the book from the Web if necessary. Do **NOT** purchase the 8th edition!

Calculator: You can use any calculator of your choice that has no communication and no internet capabilities. Devices such as cell phones, Apple Watches, tablet computers, laptop computers, etc. cannot be used as a calculator during quizzes and exams and must be stored in a closed bag during quizzes and exams. It is your responsibility to bring an operational calculator (and ideally some extra batteries) to all quizzes and exams. There will be no backup calculators provided by me in case you forget your calculator at home or your calculator runs out of power during quizzes or exams.

Software: This course will primarily use the *StatCrunch* statistical software package, accessible at <https://www.statcrunch.com/>. A 6-month subscription costs \$13.75. Moreover, we will make use of other software and teachware available on the Web on many occasions. In addition to *StatCrunch*, you can use any other statistical software package (such as Excel, SAS, R, SPSS, Matlab, Minitab, etc.) for the homework assignments. However, you have to understand concepts and ideas for the quizzes and exams to be able to do some of the calculations and plots

manually. Neither I nor the recitation leaders will be able to provide support for software other than *StatCrunch*.

Additional Course Material: The Powerpoint slides used in class will be made available in Canvas. It is your responsibility to download and/or print the slides before class.

IDEA Center Learning Objectives:

Objective 1) Gaining factual knowledge (terminology, classifications, methods, trends).

Objective 2) Learning fundamental principles, generalizations, or theories.

Objective 3) Learning to apply course material (to improve thinking, problem solving, and decisions).

Objective 11) Learning to analyze and critically evaluate ideas, arguments, and points of view.

Topics:

1. Introduction to statistical concepts.
2. Graphical techniques.
3. Probability.
4. Distributions.
5. Estimation.
6. One and two sample testing.
7. Chi-square tests.
8. Simple linear regression.
9. Analysis of variance (ANOVA).

Course Requirements:

- 0) Prerequisite:** C- or better in MATH 1050 or Math ACT score of at least 25 (Math SAT score of at least 580) within the Math prerequisite acceptability time limit; or satisfactory score on Math Placement Test. Basic computer skills, in particular the ability to access and use the World Wide Web, are highly desirable.
- 1) Class Attendance & Announcements:** You are responsible for all material assigned as required reading and presented in the lectures. It is also your responsibility to read all information in Canvas, in particular the announcements and discussions, as well as all information posted on the public course web site, in particular homework assignments and data sets. Before you ask a new question via e-mail or Canvas, please check that this questions hasn't already been answered in Canvas.
- 2) Recitation Lectures:** In addition to class, you have to register for one of the five recitation sections. Recitation lectures will be held on 28 days throughout the semester as outlined above.

3) Homework: Assignments will be posted on the Web almost every week at:

http://www.math.usu.edu/~symanzik/teaching/2016_stat2000_fall/stat2000.html
Homework will be collected in class in the following week. Homework can also be turned in during the recitation lectures prior to the due date. In general, late homework submissions will not be accepted. Once I have left the classroom on the due date, no further homework submission will be accepted — not on paper and not electronically. If you cannot turn in a homework assignment by yourself, ask a friend to turn in your homework assignment by the due date. Your homework assignment must be turned in on paper. Electronic submissions via e-mail or through Canvas will not be accepted.

There are 12 assignments (15 points each). However, only your best 10 homework assignments will contribute to your course grade. Therefore, you can miss to turn in two entire homework assignments without hurting your overall course grade. Homework assignments are worth a total of 15% (150 points) of your course grade.

Most of the homework questions will be graded on a done/not done basis. You may get full points for such questions even if your answer is incorrect. It is your responsibility to compare your answers with the solutions that are distributed in the recitation lectures. One or two questions from each assignment will be graded with respect to correctness. You may fully answer such a question, but still receive 0 points in case your answer is totally wrong. It will not be announced in advance which question(s) will be graded with respect to correctness.

Be **guaranteed** that each midterm contains **at least one** of the previous homework questions in a slightly modified form. If you like, you may work in groups on the homework assignments. In fact, you are encouraged to do so. However, each person must turn in an individual homework solution sheet. Photocopies are not permitted and will result in 0 points. Identical computer printouts will result in 0 points for everyone with the same printout — so do not share your printouts and make sure to not leave them at a public printer where they can be collected by someone else.

Graded homeworks will be circulated in the recitation lectures. If you prefer that your graded homework does not get circulated in the recitation lectures, please contact your recitation leader by e-mail and let him/her know that you want to collect your graded homework in private.

4) Quizzes: A short quiz will be given at the end of each lecture when a homework assignment is due. Make sure to bring a calculator to class on those days! Each quiz will consist of one or at most two short questions that are a direct adaptation of a homework question. While the text of the questions usually remains the same, and therefore should be recognizable for everyone who worked on the homework assignment, the numbers in the questions will be different. You can answer the quiz with your homework solutions at hand, but you can't use the textbook nor any of the slides from the lecture notes. When you work on your homework answers, make sure to copy relevant formulas for each question onto your answer sheet so you will know how to solve the same question again when it is asked in a quiz (but with different numbers).

There are 12 quizzes (15 points each). However, only your best 10 quizzes will contribute to your course grade. Therefore, you can miss to take two entire quizzes without hurting your overall course grade. Quizzes are worth a total of 15% (150 points) of your course grade.

Graded quizzes will be circulated in the recitation lectures. If you prefer that your graded quiz does not get circulated in the recitation lectures, please contact your recitation leader by e-mail and let him/her know that you want to collect your graded quiz in private.

Homework assignments and quizzes are treated independently. You can obtain a score for your homework assignment even without participating in the related quiz. Or you can take a quiz without turning in the underlying homework assignment.

- 5) Midterms:** There will be two 50min, 200 point midterms, on Fr 9/30/16 and Fr 11/4/16 in class.

Graded midterms will be individually handed out in the recitation lectures. However, uncollected graded midterms will be added to the pile of graded homeworks and quizzes and will be circulated in future recitation lectures. In case you are not able to collect your graded midterm personally while handed out in the recitation lectures and you prefer that your graded midterm does not get circulated in the recitation lectures, please contact your recitation leader by e-mail and let him/her know that you want to collect your graded midterm in private. You can then pick up your graded midterm from your recitation leader during his/her office hours.

- 6) Final:** There will be a 2-hour, 300 point comprehensive final exam, on Mo 12/12/16 from 7:30am to 9:20am. Everyone has to take the final exam.

- 7) Excused Absences on Quiz and Exam Days:** USU clearly specifies excused absences at <http://catalog.usu.edu/content.php?catoid=12&navoid=3160>. Please note that oversleeping, missing a bus, “not feeling well”, weddings, personal and family vacation (during the Thanksgiving week or before Christmas), etc. do not constitute excused absences. A “non-acute”, i.e., elective, medical service (such as an elective surgery) also does not constitute an excused absence. Please provide official documentation in support of your excused absence, e.g., from the USU sports department, from a faculty supervisor, or a medical notification from a doctor. If you are in doubt whether your absence qualifies as an excused absence, please contact me prior to your planned absence.

In case you are on official business at another academic institution, it may be possible to schedule your exam (midterm or final) through an academic resources center at that institution so you can take the exam at exactly the same day and time as the other students. Scheduling such an exam takes time, so please contact me at least 10 days prior to our scheduled exam.

- 8) Makeup Quizzes and Exams:** In case you have to miss a quiz or an exam because of an excused absence and you can provide proper documentation by the time of the makeup quiz or exam, you will be given an opportunity for a makeup quiz or exam. To guarantee your participation in a makeup quiz or exam, you must contact me via e-mail by 11:59pm on the Saturday following the original quiz or exam. It is OK that multiple students participating in the same event contact me via a single e-mail that is also cc'ed to all of the other students who participate in that event. Different sports disciplines report absences of their students in different ways, e.g., a few days before each event or via a comprehensive travel overview at the start of the semester. Anyway, please send me a personal e-mail to confirm your participation in an upcoming sports event as schedules may change due to injuries, shifted departure times, or cancelled events. If no student contacts me at all by the Saturday deadline, no makeup quiz or exam will be offered in

the following week.

Makeup quizzes will take place at 8:15am on the Monday following the originally scheduled quiz. Please report to Linda Skabelund in AnSc 117. Homework assignments that are due at the time of the originally scheduled quiz can be turned in in advance or at the time of the makeup quiz.

Makeup midterms will take place within two weeks after the originally scheduled midterms. The exact day and time will be scheduled after the original midterm.

There will be no opportunity to schedule a makeup final exam immediately after the semester. Rather, students who missed the final exam will have to take the final exam the next semester Stat 2000 is offered (at the date and time the next final exam is scheduled) and will initially receive an “IF” grade at the end of this semester (given that they have a passing grade, i.e., “D” or better, based on the two midterms).

If your absence does not qualify as an excused absence or if you can’t provide proper documentation, no makeup quiz or exam will be offered to you; rather, this quiz or exam will be recorded as 0 points for you.

In case your excused absence is followed by another excused absence and you miss the makeup quiz or exam, a case-by-case solution will be found. However, in case your excused absence is followed by a non-excused absence and you miss the makeup quiz or exam because of this non-excused absence, this quiz or exam will be recorded as 0 points for you.

- 9) **Late Arrival on Quiz and Exam Days:** When you arrive a few minutes late for a quiz or an exam, you will still be allowed to take that quiz or exam if no other student has turned in his/her quiz or exam and has left the classroom. However, no extra time will be provided to you and you still have to turn in your quiz or exam at the end of the quiz or exam period. Once the first other student has turned in his/her quiz or exam and has left the classroom, you won’t be allowed to take the quiz or exam. No makeup quiz or exam will be offered to you in this case; rather, this quiz or exam will be recorded as 0 points for you.
- 10) **Intermediate Grades:** Prior to Midterm 1, no intermediate grade is available. Between Midterm 1 and Midterm 2, your grade from Midterm 1 counts as intermediate grade. Between Midterm 2 and the final exam, the average of your grades from Midterm 1 and Midterm 2 counts as intermediate grade. Points from quizzes and homework assignments will not be considered for intermediate grades and will only be used to determine your overall grade at the end of the semester.
- 11) **Plagiarism and Cheating:** Plagiarism and cheating are not acceptable at any time. This includes turning in the work from somebody else as your own work (such as copying homework solutions from the web or from the solution book that often can be found at amazon.com), and providing or receiving help from someone else during an exam. If you receive help (e.g., for the homeworks) from some other source, you must clearly acknowledge that source, e.g., list the book or web site or indicate that a solution was produced with the help of a friend or tutor. The *USU Student Code of Conduct*, accessible at <https://studentconduct.usu.edu/studentcode/index>, outlines possible consequences in case of plagiarism or cheating.
- 12) **Americans with Disabilities Act:** If a student has a disability that will likely require

some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center (DRC), during the first week of the course. Any requests for special considerations relating to attendance, pedagogy, taking of examination, etc. must be discussed with and approved by the instructor. In cooperation with the Disability Resource Center, course materials can be provided in alternative formats — large print, audio, diskette or Braille. You must obtain the proper signed forms from the DRC. Otherwise, we won't be able to accommodate your special needs. It is your responsibility to communicate and confirm quiz and exam dates with the DRC.

Important Dates:

Classes: There are no classes on Monday 9/5 (Labor Day) and from Wednesday 11/23 to Friday 11/25 (Thanksgiving Break). The class from Friday 10/21 (Fall Break) will be held on Thursday 10/20.

Homework posted on Web: Typically every Friday afternoon or evening between 9/2 and 12/2. Exceptions will be announced in class (12 assignments overall). No new homework assignments will be posted on exam days, i.e., on Fr 9/30 and Fr 11/4.

Homework due / Quizzes: Typically each following Friday. Exceptions will be announced in class and due dates (which will also be the date of a quiz) will be listed on each assignment sheet.

Graded homework and quizzes returned and solutions passed out: Typically in the recitation lectures in the following week. Graded homeworks, graded quizzes, and solutions will not be distributed in class. If you cannot pick your graded homework and quiz and the solutions during the recitation lectures, you have to collect these from your recitation leader during his/her office hours.

Midterms: Friday 9/30/16 and Friday 11/4/16 (50min in class).

Final: Monday 12/12/16 from 7:30am to 9:20am (2 hours).

Grading System:

Final	30%	300 pts
Midterms	2 x 20% = 40%	2 x 200 pts = 400 pts
Homework	15%	best 10 x 15 pts = 150 pts
Quizzes	15%	best 10 x 15 pts = 150 pts
Total	100%	1000 pts

Stat 2000 grades on average are lower than for many other classes. In the recent past, there were on average about 30% of Ds and Fs awarded. To obtain a better outcome, the department recently started to offer extensive recitation lectures. It is strongly suggested to attend those lectures whenever possible to obtain a better grade (or at least a passing grade)!

The above schedule and procedures in this course are subject to change in the event of extenuating circumstances.