

Course Syllabus: PSYC/SOCL 3314
Statistics for the Social and Behavioral Sciences
Spring, 2021

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REQUIRED TEXTS AND MATERIALS

- Diekhoff, G. M. *Basic Statistics for the Social and Behavioral Sciences*. Zip Publishing reprint of Prentice-Hall publication. Available from the campus bookstore.
- Diekhoff, G. M. *SPSS for the Social and Behavioral Sciences (2020-2021)*. Zip Publishing reprint. Available from the campus bookstore.
- Battery-operated hand calculator with the following functions: +, -, x, /, x^2 , square root, and memory.
- You will need to have a desktop or laptop computer with an installed subscription to the IBM SPSS Statistics Standard Grad Pack (Version 27.0). You can purchase this wherever you like, but here is one vendor that has proven to be reliable and who provided good customer service in the past: <https://www.hearne.software/SPSS-Selection>. Where ever you get it, the cost should be about \$50 for a six-month subscription.
- You will need to have a screen capture tool installed on your desktop or laptop computer. You can obtain such a tool anywhere you like, but TechSmith Capture (formerly "Jing") is free at this URL: <https://www.techsmith.com/jing-tool.html>

RECOMMENDED BUT NOT REQUIRED.

- A USB flash drive is recommended to help you keep lab files organized
- Laerd Statistics at <https://statistics.laerd.com> provides an excellent guide to the use of SPSS at a very reasonable price--\$12.99 for six months). I recommend that you take the free tour and decide if their guide might be helpful to you as you learn to use SPSS.
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LEARNING OBJECTIVES

In this course you will be exposed to the full range of basic statistics as they are used by researchers in the social, behavioral, and biomedical sciences. The course begins with descriptive statistics--methods by which we can best describe individual cases, samples of several cases, and even populations. Univariate significant difference tests come next, where you will learn how to determine if a difference that is observed between a sample and a population or between several samples is a difference that is large enough to be attributed to factors beyond the natural variability that is characteristic of samples. Bivariate correlational statistics help us to determine which variables covary, or "move" together, and give us ways of measuring the strength and reliability of those associations. Finally, bivariate regression analysis allows us to use an established correlation between two variables to predict a case's score on one variable when provided with a score on the other variable. Throughout the semester the emphasis will be on applications of statistical procedures. However, this is not a "cookbook" statistics course. You will learn how statistical analyses work in addition to learning how to use them. Thirteen 50-minute computer labs will provide you with training in the use of IBM's *Statistical Package for the Social and Behavioral Sciences* (IBM SPSS). This package of statistical software will enable you to perform a full range of basic statistical analyses and prepare you for the study of more complex procedures.

COMMUNICATION: WHAT YOU CAN EXPECT

Although D2L will serve as the platform to provide all lectures and tests in the course, all other communication with me will be via email, not the D2L messaging or announcement systems. My email address is george.diekhoff@msutexas.edu and I will use the email addresses you have on file with MSU to communicate with you. If you do not receive an email from me that you expected to receive, check the spam folder of your email software.

LECTURES: WHAT YOU CAN EXPECT

This is a synchronous online course. What that means is that I will use the Zoom platform to stream lectures online from a remote location on a fixed schedule: Tuesdays and Thursdays from 9:30 am to 10:50 am from January 12, 2021 through April 22, 2021. You will be able to access those lectures through MSU's D2L platform. The lectures will not be recorded. If you wish to record lectures you will need to acquire personal software to accomplish that purpose. You should contact D2Lhelp@msutexas.edu if you have any difficulties or questions pertaining to accessing lectures or labs via D2L.

Four tests covering material presented in lectures and the textbook will all be administered remotely through D2L. In order to provide me with some flexibility in the pacing of lectures, these four exams are not scheduled in advance. Instead, the date of each lecture exam will be announced in lecture at least one week in advance. Performance on the four exams covering material presented in lectures and the textbook will contribute 75% toward your course grade. Performance in the statistics

lab (discussed later) will contribute the remaining 25%.

LECTURE ATTENDANCE

Although I will have a list each day of which students have logged in to that day's Zoom lecture, I will not take "attendance" in the lecture portion of the class except on days of lecture exams, but I strongly encourage you to view the lectures as you are very unlikely to do well in the course otherwise. Students who miss scheduled lecture exams will be allowed to take makeup exams (contact me), but there will be a one letter grade penalty for exams missed for unexcused reasons. University policy dictates three types of excused absences:

- the student provides a written excuse from a medical practitioner stating that the student was unable to test on the day of the test;
- the student provides a written excuse from a medical practitioner stating that the student's dependent child was ill on the day of the test;
- the student provides a written excuse from an official of Midwestern State University stating that the student was in attendance at a mandatory university function on the day of the test.

Funerals, employment-related absences, illnesses not requiring medical attention, job interviews, family emergencies, automobile malfunctions, court appearances, etc. do not constitute excused absences.

COMPUTER LABS: WHAT YOU CAN EXPECT

Thirteen computer lab sessions (ten instructional labs and three testing sessions) are a required component of this course. The schedule for these labs is found at the end of this syllabus. Although the computer lab in O'Donohoe 126 will be available for your use throughout the semester, there will be no face-to-face lab instruction in the computer lab and you will not be able to use the lab for testing. It is for that reason that you will need to purchase a personal subscription to IBM SPSS Version 27.0. The 10 instructional labs will be pre-recorded and made available to you online through D2L. Your lab instructor, Mr. Gilbert Garcia (gilberto.garcia@msutexas.edu) will be in touch with you via email with details about the lab. Those instructional videos will be released according to the schedule at the end of this syllabus. The three computer lab exams will be administered on the schedule shown at the end of the syllabus. Your performance on the three computer lab exams and ten computer lab homework assignments will contribute 25% toward your course grade. The lab instructor will be in touch with you via email to communicate specific information about the lab exams.

You should contact gilberto.garcia@msutexas.edu for any questions or problems pertaining to the lab portion of this course.

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COMPUTER LAB ATTENDANCE

Labs will be taught remotely and you are not required to view the instructional lessons, but you can expect to do very poorly on lab tests and homework if you don't view the instructional videos. You are expected to take exams on the days and times that they are scheduled and to have lab homework assignments turned in on schedule. (The days of lab exams are included in the lab schedule at the end of this syllabus. Your lab instructor will contact you with information about what times those exams will be available to you.) Missing an exam results in a 10% (one letter grade) penalty unless you provide documentation that the absence was excused. Lab homework assignments cannot be turned in late for any reason as you have plenty of scheduling flexibility to get those turned in on time. I suggest that you aim to turn them in early so that if something prevents that you will still have time to get them in by the deadline.

GRADING

There will be four tests in the lecture portion of the class, each worth 100 points. There will be three tests in the computer lab, each worth 100 points. There will be 10 computer lab homework assignments each worth 10 points. Course grades will be based on your accumulated point totals, weighted so that the lecture portion of the course contributes 75% to your total and the lab contributes 25%:

$$\text{Total} = [.75 \times (\text{Lecture Test Total})] + [.25 \times (\text{Lab Test Total} + \text{Lab Homework Total})]$$

Course letter grades will then be assigned on the following scale:

- A = 360-400 total points
- B = 320-359 total points
- C = 280-319 total points
- D = 240-279 total points
- F = less than 240 total points

Grades on lecture or lab exams taken late because of an unexcused absence will be lowered by 10% (one letter grade). It is your responsibility to contact me to arrange a makeup examination if you miss a lecture exam or contact your lab instructor to arrange a makeup examination if you miss a computer lab exam. Again, lab homework cannot be turned in late for any reason.

Lab homework that is associated with each lab exam is due any time prior to the day of the lab exam. For example, the first lab exam covers material presented in Labs 1 through 3. Your homework for Labs 1 through 3 is therefore due any time prior to the first lab exam. Homework turned in late for any reason will receive no credit. Lab homework assignments that are improperly labeled will not be graded. (Instructions on proper labeling of lab homework is described in the lab manual and will be reiterated in the first computer lab.)

OFFICE HOURS

I will be available for virtual office hours by appointment. If you want to “meet” with me via teleconference, email me at george.diekhoff@msutexas.edu to arrange an appointment. At the time of your appointment, go to <https://doxy.me/DrGeorgeDiekhoff>. Unlike Zoom, doxy.me provides a HIPAA compliant platform that ensures privacy. Be sure to use Google Chrome, Firefox or Safari as your browser or you can download the free doxy.me app for your smart phone. Once you log in, you will be in my virtual waiting room. I will be notified that you are there and will open our conversation.

DISABILITIES

Individuals requiring special accommodations according to the Americans with Disabilities Act should contact the MSU Disability Support Services office.

TOPICS AND READING ASSIGNMENTS

Introduction and Summation Notation—Chapter 1, Appendix A

Data distributions: Tables and graphs—Chapter 2

Descriptive statistics—Chapter 3

EXAM 1 covers Chapters 1, 2, 3, and Appendix A*

Probability and the normal distribution—Chapter 4

Sampling distributions and interval estimation—Chapter 5

EXAM 2 covers Chapters 4 and 5*

Significant difference tests: one- and two-sample tests; one-way ANOVA; factorial ANOVA—Chapters 6, 7, 8, 9

EXAM 3 covers Chapters 6, 7, 8, and 9*

Correlation and regression—Chapters 10, 11

EXAM 4 covers chapters 10 and 11*

* I need to have some flexibility in scheduling exams to allow for technology failures, work backlogs in the Distance Education office, and the various uncertainties that are associated with a nontraditional instructional format. I will let you know at least one

week in advance of lecture tests, and will hopefully be able to give you more advance notice than that.

COMPUTER LAB SCHEDULE

Labs will be scheduled on Thursdays throughout the semester, but remember that there are no face-to-face meetings. Instructional lectures will be available to you according to the following schedule. The schedule also shows days of lab exams. Times on those days that the lab exams and expectations regarding the completion of exams will be available to you will be conveyed by your lab instructor. Remember that homework assignments associated with each lab must be turned in before you take the corresponding lab exam; no homework will be accepted late. That does not mean that you cannot take an exam until you've turned in your homework. You can take an exam before turning in the homework associated with that exam. You just won't get credit for homework unless it has been turned in before you took the corresponding lab exam.

This schedule is tentative and may be changed.

01-14-2021—No Lab

01-21-2021—Lab 1, Getting Started with SPSS; Creating Data Files

01-28-2021—Lab 2, Editing and Modifying Data Files

02-04-2021—Lab 3, Generating Reports and Graphs

02-11-2021—Lab Exam 1 (Homework for Labs 1-3 is due before you test)

02-18-2021—Lab 4, Data Distributions and Descriptive Statistics

02-25-2021—Lab 5, One-Sample Significant Difference Tests

03-04-2021—Lab 6, Two-Sample Significant Difference Tests

03-11-2021—Lab Exam 2 (Homework for Labs 4-6 is due before you test)

03-18-2021—Lab 7, One-Way ANOVA and Related Statistics

03-25-2021—Lab 8, Factorial ANOVA

04-01-2021—No Lab (Easter break)

04-08-2021—Lab 9, Bivariate Correlation and Scatterplots

04-15-2021—Lab 10, Bivariate Regression

04-22-2021—Lab Exam 3 (Homework from Labs 7-10 is due before you test)