# PSYC 300-212 Statistics in Psychology - Lab
## Spring 2020

**Instructor:** Steven Zhou                                **Office:** David King Hall 3041

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    **TA Advisor:** Carol Wong, cwong17@gmu.edu

    **Lecture Meeting Time:** Mondays, Wednesdays, & Fridays 12:30pm to 1:20pm

    **Lecture Meeting Place:** Fairfax Campus West Room 1001

**Lab Meeting Time:** Thursdays 10:30am to 12:20pm

**Lab Meeting Place:** Innovation Hall 317

**Office Hours:** Tuesdays 11:30am to 12:30pm

    (The hours given above are tentative; they may be changed. All changes will be announced in class.)

**Text:** Salkind, *Statistics for People Who (Think They) Hate Statistics* (7th edition)

    *\* Please see the PSYC 300-005 lecture syllabus for details on the textbook*

**Course Schedule**

| Week | Lab Date | Topic |
|------|----------|-------|
| 1 | 01/23 | Course Introduction<br>Intro to SPSS |
| 2 | 01/30 | Measures of Central Tendency & Variability |
| 3 | 02/06 | Introduction to R<br>Data Visualization & Graphing |
| 4 | 02/13 | Correlation<br>Exam 1 Review |
| 5 | 02/20 | Reliability & Validity |
| 6 | 02/27 | Hypothesis Testing |
| 7 | 03/05 | Statistical Significance |
| **8** | **03/12** | **NO LAB (Spring Break)** |
| 9 | 03/19 | One-Sample Z-Test<br>Exam 2 Review |
| 10 | 03/26 | T-Tests |
| 11 | 04/02 | One-Way ANOVA |
| 12 | 04/09 | Two-Way ANOVA<br>Exam 3 Review |
| 13 | 04/16 | Introduction to Applied Data Science |
| 14 | 04/23 | Linear Regression<br>Non-Parametric Tests |
| 15 | 04/30 | Final Review |

## COURSE DESCRIPTION

We will cover many of the basic descriptive and inferential statistics that are used in the field of psychology. This is a 4-credit course, which includes both a lecture section and a lab section. During the lecture sessions, Dr. Stillerova will cover the topics listed on the syllabus and take you through the statistical analysis processes. During your lab sessions, we will complete in-class assignments to practice the topics covered in the lectures, review any questions you may have, and apply the tools you've learned to real life situations. You will also get hands-on experience using SPSS (Statistical Package for the Social Sciences) and other tools to analyze data.

**Student Learning Outcomes:** *By the end of this course, students should be able to…*
- Identify and apply appropriate statistical procedures (e.g. descriptive versus inferential) for simple research designs.
- Analyze data using statistical software (i.e. SPSS, R).
- Communicate statistical findings using APA guidelines.

## COURSE STRUCTURE & GRADING

I believe that education is about obtaining and applying knowledge. The knowledge presented throughout this course is crucial to your future success in the field that you have chosen, otherwise we wouldn't have added it as a requirement! Throughout the course, we will present you with the knowledge and teach you how to apply it – whether it is to a future in psychological research, business analysis, literature review, or more. It is my job to present you with the knowledge and make sure you get practice applying it.

At the same time, everyone accrues knowledge differently. Some of you learn best by listening. Others need to actually practice doing the work themselves in order to grasp the concepts. Still others just need to read the textbook. It is not my job to require you to learn a specific way. Rather, it is my job to provide you with opportunities to receive training towards the Student Learning Outcomes and the topics outlined in the course schedule. It is up to you to decide which assignments you wish to complete and how many you need to complete in order to fully grasp the material.

To that end, this course is structured somewhat different. Unlike traditional courses, I will not be requiring specific assignments and deducting points when you make mistakes. I believe mistakes are part of learning, and education should not be about *losing* points – rather, you should be *gaining* them just as you are *gaining* knowledge. Thus, throughout the course, you will be presented with opportunities to earn *Knowledge Points* (*KP*s). *KP*s are earned whenever you have completed an assignment or activity that helps you develop a skill or understand a concept. Your grade at the end of the semester will be based on how many *KP*s you have earned in total (see Grading below).

**Types of *KP*s Available**

In-Class Challenges: 13 available
During most lab sessions, I will walk us through an activity and present you with an in-class challenge. You will be given the opportunity to work on that challenge, but only during the lab hours. You may work individually or with classmates, but each person must submit their own completed challenge. At the end of the lab session, you must send your completed challenge to me. You will earn 4 *KP*s for completing each challenge.

Take-Home Challenges: 9 available
After most lab sessions, I will post take-home challenges for you to complete at home. Take-home challenges will be posted on Blackboard and must be submitted online by 11:59 PM Eastern Time on the following Thursday before our Friday lab session. Specific due dates for each challenge will be posted for each challenge. You will earn 4 *KP*s for each completed challenge uploaded to Blackboard by the deadline. On some weeks, there may be more than one challenge available. If that is the case, you can pick and choose which one you would like to complete and submit, or you can submit both for extra points!

Exam Review Projects: 3 available
For each of the first two exams, there will be a review project. These projects will be longer than the in-class and take-home challenges, and they are designed to review the material for the exam. They must be completed individually, but you can ask for help from classmates or from me! They will be due after the exam (specific dates and times will be explained when the projects are posted). You will be able to earn up to 6 *KPs* on each exam review project.

<u>Badges:</u> 2 available

You can earn the following badges for completing a special task at some point during the semester. These are *optional* assignments for extra points. Badges are worth 4 *KP*s each. All badges must be earned by the end of your final lab class on Friday, May 1, 2020.

- Read & Review Badge (R&R): Look up any empirical research paper in psychology published in a peer-reviewed journal. Submit a two-page, double-spaced paper describing: the purpose of the study, the variables used in the study, the specific statistical procedures used, the results of these analyses, and your opinion on a different statistical procedure that the researcher could have used with the same variables collected for the study.
- "R" Programming Badge (R): This class primarily focuses on the use of the statistical program SPSS. This program is the dominant statistical program used in psychological research, but it is expensive. There is a growing interest in graduate schools in the use of R, which is free, but command-based rather than menu-based. If you apply to a graduate program or research lab knowing the basics of both SPSS and R, you will strengthen your application. We will briefly cover the use of R during class, but we will not get in depth on the topic. To earn this badge, complete the R assignment posted on Blackboard.

<u>Final Project:</u> 1 available

There will be a final project due by the end of your final lab class on Friday, May 1. The project will summarize your knowledge of statistics by applying it to an original dataset. The project can be completed individually or in groups of up to 4. You can earn up to 14 *KP*s from the final project.

**Grading**

If you've been counting, this means you can earn the following *KP*s throughout the course of the semester:

- Up to 52 from in-class challenges (4 *KP*s per 13 challenges)
- Up to 36 from take-home challenges (4 *KP*s per 9 challenges)
- Up to 18 from exam review projects (6 *KP*s per 3 projects)
- Up to 8 from badges (4 *KP*s per 2 badges)
- Up to 14 from the final project (14 *KP*s per 1 project)

Your final grade for the lab section of the course will be based on the following:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 112+ *KP*s | … | A | 93 – 95 *KP*s | … | C+ | 72 – 75 *KP*s | … | D- |
| 108 – 111 *KP*s | … | A- | 88 – 92 *KP*s | … | C | 71 or less *KP*s | … | F |
| 105 – 107 *KP*s | … | B+ | 84 – 87 *KP*s | … | C- | | | |
| 100 – 104 *KP*s | … | B | 81 – 83 *KP*s | … | D+ | | | |
| 96 – 99 *KP*s | … | B- | 76 – 80 *KP*s | … | D | | | |

Remember that your lab grade is worth up to 20 points of your overall grade for PSYC 300. Your total *KP*s will be divided by 6, and that will be the number of points you receive towards your overall grade (max of 25). For example:

Dr. Hurley earned 110 *KP*s by the end of the semester.
This is divided by 6, which results in 18.3 points.
Dr. Hurley will receive 18.3/20 points on his PSYC 300 lab grade, which is an A-.

If you have any questions on grading, please feel free to contact me.

## GENERAL POLICIES

**Attendance:** Class attendance is extremely influential on your academic success and is strongly encouraged. Most of your opportunities to earn *KP*s will occur during in-class assignments or homework explained and distributed in-class. Thus, even though I will not be taking attendance, failing to come to lab will hinder your ability to collect *KP*s. If you are not in lab, it is your responsibility to check Blackboard and complete the homework assignments. If you must miss lab due to participation in sanctioned university activities (sports, theater performances, etc.), it is still your responsibility to check Blackboard and complete the homework assignments. If you have any questions, please feel free to see me to discuss.

**Make-Up Policy:** There are no make-up options or extensions. All assignments are due as indicated. I have designed the course so that there are more than enough opportunities to earn additional *KP*s to make up for a few missed assignments if that does happen.

**Academic Integrity:** Academic integrity refers to honest and ethical behavior in all aspects of academic activity. This includes: not cheating on exams or homework assignments (e.g., copying the work of others), not passing off someone else's ideas as your own (plagiarism), not engaging in dishonesty of any kind regarding your class participation and assignments.

**Plagiarism**: Plagiarism is the *unacknowledged* use of another person's labor, another person's ideas, another person's words, or another person's assistance. Unless otherwise stated in class, all work done for courses – writing assignments, examinations, homework exercises, laboratory reports, oral presentations -- is expected to be the individual effort of the student presenting the work. Any assistance must be reported to the instructor. If the work has entailed consulting other resources -- journals, books, or other media -- these resources must be cited in a manner appropriate to the course. Everything used from other sources -- suggestions for organization of ideas, ideas themselves, or actual language -- must be cited. Failure to cite borrowed material constitutes plagiarism. Undocumented use of materials from the World Wide Web is plagiarism. *If you are caught plagiarizing or cheating, you will fail the assignment, and, depending upon the severity of the violation, you may fail the class.*

**Honor Code:** George Mason University has an Honor Code, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. All violations of the Honor Code will be reported to the Honor Committee. See honorcode.gmu.edu for detailed information.

**Classroom needs**: If you have any specific needs (e.g., related to vision, hearing, learning, or medical conditions) or any religious or cultural practices, please let me know by the second week of class so that I can make the appropriate arrangements. Disabilities must be documented by the Disability Resources Center (703-993-2474) for reasonable accommodations to be provided.

**Official Communications via GMU E-mail and Blackboard:** Mason uses electronic mail to provide official information to students. Examples include communications from course instructors, notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it daily at minimum. If class is canceled, I will notify you via email; this email will include information about making up the missed class. Assignments and announcements will also be posted on Blackboard, which is linked to your GMU e-mail account. You are responsible for checking Blackboard regularly to access assignments, check grades, and upload your homework prior to lab days.

**Technology:** Regarding electronic devices (such as laptops, cell phones, etc.), please be respectful of your peers and your instructor and do not engage in activities that are unrelated to class. Such disruptions show a lack of professionalism and may affect your participation grade and/or dismissal from the lab. We will be using a statistical software package (SPSS) during lab time. You are not required to access SPSS outside of lab; however, you do have access to SPSS on any campus computer or off campus via the Virtual Computing Lab (vcl.gmu.edu).

**Add/Drop and Withdrawal Deadlines:**

| | |
|---|---|
| Last Day to Add | January 28, 2020 |
| Last Day to Drop with No Penalty | February 5, 2020 |
| Last Day to Drop with 50% Tuition Penalty | February 11, 2020 |
| Selective Withdrawal Period with 100% Tuition Penalty * | February 25 to March 30, 2020 |

      * After the last day to drop a class, withdrawing from this class requires the approval of the dean and is only allowed for nonacademic reasons. Please see the following webpage for more details about the new Add/Drop policy: https://registrar.gmu.edu/drop-withdrawal-deadlines-faqs/.