

# PSYC 101: Statistics for Psychology

## Spring 2018 Syllabus

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### Part 1: Course Information

#### Instructor Information

**Instructor:** Dr. Sharon Furtak, Assistant Professor of Psychology

- M.S. & Ph.D. in Behavioral Neuroscience from Yale University
- B.A. in Psychology from the University of Massachusetts, Amherst
- My research interests focus on the neurobiology of emotional learning & memory.

**Class Meetings Time:** Tuesdays & Thursdays 12-1:15 pm

**Class Location:** AMD 151

**Office Location:** AMD 357A

**Office Hours:** Wed 2-3pm & Thur 1:30-3:30pm, or by appointment

**Office Telephone:** 916-278-6666

**E-mail:** [furtak@csus.edu](mailto:furtak@csus.edu) (Please send emails from your Sacramento State email address. Please put "PSYC 101" in your topic line)

**Instructional Student Assistant:** Trevor Bartley, [trevorbartley@csus.edu](mailto:trevorbartley@csus.edu)

#### Course Description

Introduction to descriptive and inferential statistics as tools for evaluating data from Psychological research. Topics include: measures of central tendency, measures of variability, correlation and regression, sampling distributions, hypothesis testing procedures including t-tests and analysis of variance, and selected other topics. Application of hand computation will be emphasized to include the interpretation and significance of statistical findings. Prerequisite: Passing score on ELM; PSYC 2, PSYC 4, PSYC 8. PSYC majors only.

#### Required Textbook

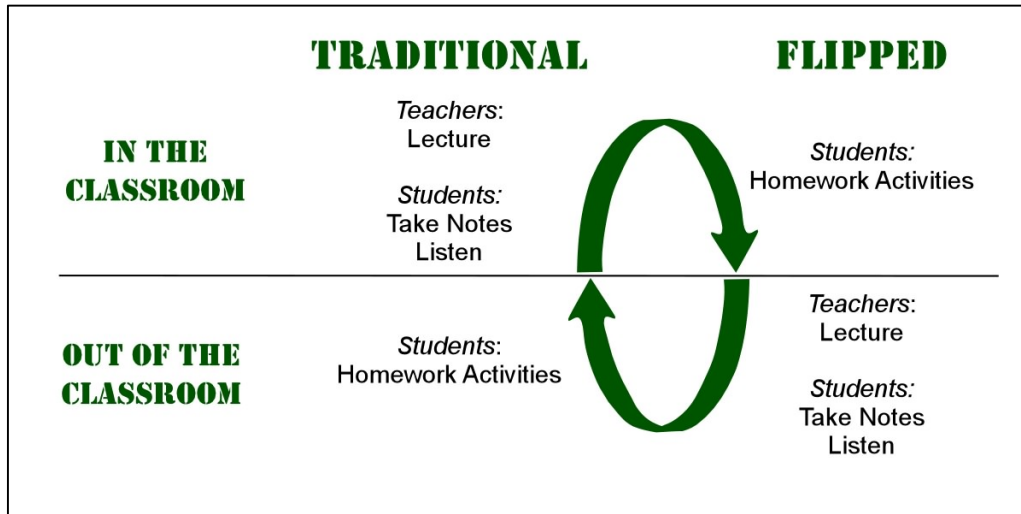
- "Statistics for Psychology" by Aron, Aron, & Coups, 6<sup>th</sup> ed. available at the Bookstore: loose leaf \$172, hard cover \$108-271, or e-book \$100.
- Other readings will be made available in Canvas (see Course Content). Material will be posted & updated regularly. **NO RECORDING OR PHOTOGRAPHY IN CLASS EXCEPT WITH THE PERMISSION OF DR. FURTAK.**

#### Course Requirements

- Internet connection (DSL, LAN, or cable connection desirable)
- Access to Canvas: see below.

- Calculator: You will be required to have a basic calculator for quizzes and exams. It should be able to add, subtract, multiple, divide and take the square root. Graphing calculators are *not* allowed. You will not be allowed access to phones, computers or additional devices other than a calculator during exams. *All work must be shown by hand for credit to be given.*
- Access to Adobe Reader & Microsoft Office (available in computer labs)
- Access to QuickTime or alternative video player software for mpg files.

**Course Structure: Welcome to a “Flipped Classroom”**



a. A “flipped” classroom model suggests that lecture material is completed outside of the classroom and homework is completed in the classroom. Student success in a “flipped” classroom model is a result of student preparedness. Make sure to come to class prepared for the day’s activities. This means completing all assigned readings, watching videos and completing assignments before class.

b. Based on the Sac State Credit Hour Policy ([Credit Hour Policy Link](#)), students should expect that for a 3-unit class they will spend a minimum of 6 hours a week outside of the classroom in completing course related assignments. You may find in the past you didn’t need the full 6 hours for one class; however, for this class you will need the full 6 hours outside of class for readings, concept videos and door tickets. I find students have a hard time reserving this amount of time. At the beginning of the semester put that time aside by adding in 6 hours of study time dedicated to this class into your calendar.

c. Peer and instructor support will help when you hit a roadblock. Make sure to seek out your peers and instructor at the beginning of a problem. Dr. Furtak and Mr. Bartley are available to meet with you. In addition, on campus the PARC center ([PARC Home Link](#)) has dedicated help for Psychology students with statistics. PARC is located at Lassen 2200 and is open M-TH 8-5pm & F 8-4pm.

## Canvas Access

- This course will have materials posted online through a learning management system named Canvas. You will use your SacLink account to login to the course from the [Canvas login page](https://canvas.csus.edu/) (<https://canvas.csus.edu/>).
- **How can I learn about Canvas?** There are several ways to learn about Canvas including [Student Web Guides](#), a helpful [video series](#), and an [Online Canvas Orientation Course](#).

## Technical Assistance

- **How can I get help with Canvas?** The Canvas Help menu is populated with valuable resources including a link to search the [Canvas Community](#) for answers to your requests. You can contact Academic Technology Center for support at (916)278-7337, [canvas@csus.edu](mailto:canvas@csus.edu) , or by visiting AIRC 2005.
- **If you experience technical difficulties** with your computer or network connection to the university please contact the Information Resource and Technology (IRT) Service Desk by e-mail: [servicedesk@csus.edu](mailto:servicedesk@csus.edu) , phone (916) 278-7337, or visit them in person at ARC 2005.
- If you **need assistance** navigating or operating Canvas please contact the Student Technology Center in AIRC 3007, 916.278.2364, or [stc@csus.edu](mailto:stc@csus.edu).

**Important Note:** This syllabus, along with course assignments and due dates, are subject to change. It is the student's responsibility to check Canvas for corrections or updates to the syllabus. Any changes will be clearly noted in course announcement.

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### Part 2: Course Objectives

By the end of this course students will be able to:

- 1) Understand several common statistical methods used in psychological research and their usefulness as well as their limitations.
- 2) Recognize which statistics tests to use for different types of psychological research designs, and understand assumptions of the statistical tests.
- 3) Calculate descriptive and inferential statistics by hand (using a calculator).
- 4) Interpret the results of statistical calculations, drawing conclusions about statistical significance and what it means for research hypotheses.

You will meet the objectives listed above through a combination of the following activities in this course:

- Read assigned **Chapters** and watch assigned **Videos** prior to classroom meetings.
- Complete and bring **Door Tickets** to class. A door ticket consists of a printed copy of a fill-in-the-blank document available on Canvas that accompanies videos and readings. Completing the door ticket displays that you have the basic level of knowledge needed for understanding and participating in the in class activity. Without this basic knowledge you would have to rely on a group member explaining to you, which is not fair to your peers. For this reason, if you have not completed the door ticket, then you will be asked to complete it before joining the students on the days in class activity. They are referred to as a door ticket because they will be checked at the door upon entry to the classroom each Tuesday.
- Attend class and participate in **In Class Activities** that use real world studies to implement statistical analysis, and at the end of the day on Thursday show your work for credit.
- Take **Exams** on conceptual information that incorporate short answer and an example study that students will need to work through using hypothesis testing.
- Complete **Results Section Writing Assignments** that will increase understanding of statistical interpretation and will be written in the format of a results section for a mock APA manuscript.

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**Part 3: Topic Outline/Schedule**

**Important Note:** Refer to the course calendar for specific meeting dates and times. Activity and assignment details will be explained in detail within each week's corresponding learning module. If you have questions, please contact Dr. Furtak.

<b>Week</b>	<b>Dates</b>	<b>Topic</b>	<b>Reading</b>	<b>Activities</b>
1	Tu-Jan. 23 <sup>rd</sup> & Th-Jan. 25 <sup>th</sup>	Introduction to Variables and Graphing	Ch. 1	<ul style="list-style-type: none"> <li>• Illustrate examples of nominal, scale or ratio variables.</li> <li>• Graph an example distribution and describe it.</li> <li>• State the difference between descriptive and inferential statistics.</li> </ul>
2	Tu-Jan. 30 <sup>th</sup> & Th-Feb.1 <sup>st</sup>	Central Tendency and Variability	Ch. 2	<ul style="list-style-type: none"> <li>• Demonstrate the ability to relate the mode, the median and the mean of a data set.</li> <li>• Explain variability and why we measure it.</li> <li>• Calculate the appropriate descriptive statistics for examples of each variable type.</li> <li>• Write a results section given a descriptive statistical analysis.</li> </ul>
3	Tu-Feb. 6 <sup>th</sup> & Th-Feb. 8 <sup>th</sup>	Introduction to Inferential Statistics	Ch. 3	<ul style="list-style-type: none"> <li>• Describe the normal curve.</li> <li>• Differentiate between a sample and population.</li> <li>• Calculate a Z score.</li> <li>• Explain how a Z score indicates the probability of a score.</li> </ul>
4	Tu-Feb. 13 <sup>th</sup> &  <b>Th-Feb. 16<sup>th</sup></b>	Exam Preparation  <b>Exam 1</b>	Ch. 1-3 Review  <b>Ch. 1-3</b>	<ul style="list-style-type: none"> <li>• A review of chapter material from chapters 1-3.</li> </ul> <p><b>Exam 1</b></p>

<b>Week</b>	<b>Dates</b>	<b>Topic</b>	<b>Reading</b>	<b>Activities</b>
5	Tu-Feb. 20 <sup>th</sup> & Th-Feb. 22 <sup>nd</sup>	Hypothesis Testing	Ch. 4	<ul style="list-style-type: none"> <li>• Identify the dependent and independent variable in a research study.</li> <li>• State the statistical null and alternative hypotheses.</li> <li>• Differentiate a one- and two-tailed test.</li> <li>• Using an example to explain the 5 steps of Hypothesis Testing.</li> </ul>
6	Tu-Feb. 27 <sup>th</sup> & Th-Mar. 1 <sup>st</sup>	Hypothesis Testing with a Z Test	Ch. 5	<ul style="list-style-type: none"> <li>• Differentiate distribution of scores versus a distribution of means.</li> <li>• Demonstrate a Z test using hypothesis testing.</li> </ul>
7	Tu-Mar. 6 <sup>th</sup> & Th-Mar. 8 <sup>th</sup>	Hypothesis Testing with a Z Test	Ch. 5	<ul style="list-style-type: none"> <li>• Explain standard error conceptually and state its purpose in statistical testing.</li> <li>• Write a results section given a statistical finding for a Z test analysis.</li> </ul>
8	Tu-Mar. 13 <sup>th</sup> & <b>Th-Mar. 15<sup>th</sup></b>	Exam Preparation  <b>Exam 2</b>	Ch. 4-5 Review  <b>Ch. 4-5</b>	<ul style="list-style-type: none"> <li>• A review of chapter material from chapters 4-5.</li> </ul> <b>Exam 2</b>
9	Tu-Mar. 20 <sup>th</sup> & Th-Mar. 22 <sup>nd</sup>	<b>Spring Break</b>	<b>N/A</b>	<b>N/A</b>
10	Tu-Mar. 27 <sup>th</sup> & Th- Mar. 29 <sup>th</sup>	Statistical Significance	Ch. 6	<ul style="list-style-type: none"> <li>• Determine statistical significance given a <math>p</math>-value.</li> <li>• Define effect size and power in relation to a given statistical value.</li> <li>• State how Type I and Type II error relate to statistical testing.</li> </ul>
11	Tu-Apr. 3 <sup>rd</sup> & Th-Apr. 5 <sup>th</sup>	Hypothesis Testing with $t$ Test for a single sample and for dependent means	Ch. 7	<ul style="list-style-type: none"> <li>• Differentiate when to use a dependent means <math>t</math> test, a single sample <math>t</math> test, and a Z test.</li> <li>• Demonstrate a <math>t</math> test for single sample and dependent means using hypothesis testing.</li> <li>• Write a results section given a statistical finding for a <math>t</math> test for simple sample and dependent means analysis.</li> </ul>

Week	Dates	Topic	Reading	Activities
12	Tu-Apr. 10 <sup>th</sup> & Th-Apr. 12 <sup>th</sup>	An Introduction to <i>t</i> Test for Independent Means and the Distribution of Differences Between Means.	Ch. 8	<ul style="list-style-type: none"> <li>• Explain conceptually what the distribution of differences between means and how it differs from previous distributions.</li> <li>• Give examples of distribution types (scores, means, and differences between means).</li> <li>• Differentiate when to use a <i>t</i> test for independent means from other <i>t</i> tests and the <i>Z</i> test.</li> <li>• Demonstrate a <i>t</i> test for independent means using hypothesis testing.</li> <li>• Write a results section for a <i>t</i> test for dependent means analysis.</li> </ul>
13	Tu-Apr. 17 <sup>th</sup> & <b>Th-Apr. 19<sup>th</sup></b>	Exam Preparation  <b>Exam 3</b>	Ch. 6-8 Review  <b>Ch. 6-8</b>	<ul style="list-style-type: none"> <li>• A review of chapter material from chapters 6-8.</li> </ul> <b>Exam 3</b>
14	Tu-Apr. 24 <sup>th</sup> & Th-Apr. 26 <sup>th</sup>	Introduction to Analysis of Variance (ANOVA).	Ch. 9-10 (pp. 377-97)	<ul style="list-style-type: none"> <li>• Differentiate when to use a one-way analysis of variance (ANOVA) from a <i>t</i> test for independent means.</li> <li>• Define planned contrasts.</li> <li>• Demonstrate a one-way ANOVA with a planned contrast using hypothesis testing.</li> <li>• Write a results section for a one-way ANOVA.</li> <li>• Differentiate a one-way from a factorial ANOVA.</li> <li>• Using a table and graph, explain what a main effect and an interaction would be in a hypothetical set of data.</li> </ul>
15	Tu-May 1 <sup>st</sup> & Th-May 3 <sup>rd</sup>	Correlation and Regression	Ch. 11-12	<ul style="list-style-type: none"> <li>• Graph a scatterplot.</li> <li>• Describe patterns of correlations.</li> <li>• Differentiate correlation versus regression analysis.</li> <li>• Describe the use of error in regression.</li> <li>• Demonstrate a correlation and regression using hypothesis</li> </ul>

<b>Week</b>	<b>Dates</b>	<b>Topic</b>	<b>Reading</b>	<b>Activities</b>
				testing. • Write a results section for a correlation and regression analysis.
16	Tu-May 8 <sup>th</sup> &  Th-May 10 <sup>th</sup>	Non-Parametric Tests  Culminating Challenge (Final Exam review)	Ch. 13  Ch.1-12	• Explain when a non-parametric test is used. • Demonstrate a chi-square test using hypothesis testing.  • Identify the correct statistical test to use given an example research project. • Identify the resulting data set that would be produced by a self-designed research study. • Write the results up in a complete results section of APA manuscript.
17	Finals Week	<b>Final Exam</b>	<b>Ch. 1-12</b>	<b>Final Exam (tests cumulative knowledge from the entire semester but hypothesis test will use regression).</b>



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## Part 4: Grading Policy

### Graded Course Activities

<b>Points</b>	<b>Description</b>
600 pt (150 pts each)	<b>Exams.</b> There will be four exams. If an exam is missed, then a make-up exam will only be given under extreme unavoidable circumstances with 72 hours of scheduled assessment date. Documentation must be provided.
70 pt (5 pt each)	<b>Door Ticket.</b> There will be 14 door tickets that must be handed in at the beginning of the class session on Tuesdays to receive points. To receive points for the door ticket, it must be printed and filled in (or completely hand-written) upon entry to the classroom on the day it is due. Door tickets are available on Canvas. They are referred to as a door ticket because they will be checked at the door upon entry to the classroom. Points will only be given to students who arrive on time. There will be a 10 min. grace period. In the circumstance you miss class you must send me a scanned copy of your door ticket by the time class begins on the due date to receive credit.
200 pt (20 pt each)	<b>In Class Activities.</b> There will be 10 in-class activities that must be completed and handed in by the due date to receive points. If an activity is missed, email Dr. Furtak within 24 hours to see if credit can be obtained for the completed activity and how to submit it.
130 pt (26 pt each)	<b>Results Section Writing Assignment.</b> There will be 5 write-ups of results section for a mock APA manuscript.
<b>1000 pt total</b>	<b>Total Points Possible</b>

**Late Work Policy**

Be sure to pay close attention to deadlines—there will be no make up assignments, or late work accepted without a serious and compelling reason and instructor approval. **If you miss a day of class for a valid & document reason**, then contact Dr. Furtak immediately at [furtak@csus.edu](mailto:furtak@csus.edu). For a day you miss class:

**1) Door Tickets:** In the circumstance you miss class you can still get credit for the door ticket by sending an email to Dr. Furtak [furtak@csus.edu](mailto:furtak@csus.edu) with the scanned copy of your door ticket attached as a PDF file *by the time class begins on the due date*.

**2) Class Activity:** In the circumstance you miss class on the day of an activity, you can download the class activity from Canvas and complete the activity. Email Dr. Furtak [furtak@csus.edu](mailto:furtak@csus.edu) within 24 hours of the missed class to see if credit can be obtained for the completed activity and how to submit it.

**3) Exam:** If you miss an exam for a valid & document reason, then you must contact Dr. Furtak immediately at [furtak@csus.edu](mailto:furtak@csus.edu) to schedule a make-up exam within 72 hours of the original test date. Please do not submit documentation directly to Dr. Furtak. If documentation is requested, then Dr. Furtak will provide directions for the submission of documentation.

**Viewing Grades in Canvas**

Points you receive for graded exams and assignments will be posted to the Canvas Grade Book typically within 7 days of the due date. Click on the My Grades link on the left navigation to view your points.

It is your responsibility to check these grades once posted. *If you have a question or complaint about a grade posted on Canvas, then you must email Dr. Furtak within 7 days of the posted grade.* In the email, please put in subject line "question regarding grade" and within the email make sure to state which assignment you are referring to and exactly where you believe a grading error was made. The professor will respond to emails only from your CSUS email address so that identity can be made and validated.

## Letter Grade Assignment

Final grades assigned for this course will be based on the total points earned and are assigned as follows, point values are not rounded up:

Letter Grade	Points	Performance
A	940-1000	Excellent Work
A-	900-939.9	Nearly Excellent Work
B+	870-899.9	Very Good Work
B	840-869.9	Good Work
B-	800-839.9	Mostly Good Work
C+	770-799.9	Above Average Work
C	740-769.9	Average Work
C-	700-739.9	Mostly Average Work
D+	670-699.9	Below Average Work
D	600-669.9	Poor Work
F	0-599.9	Failing Work

**Important note:** For more information about grading at Sac State, visit the academic policies and grading section of the university catalog.

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## Part 5: Course Policies

### Participation

Students are expected to be prepared for class and participate in all class activities. This means that you have read the assigned chapters, have watched the assigned videos, and have completed the door ticket for the week. The door ticket shows that you have the minimal amount of knowledge necessary to complete the activity. Without this basic knowledge you would have to rely on a group member explaining to you, which is not fair to your peers. For this reason, if you have not completed the door ticket, then you will be asked to complete it before joining the students on the days in class activity. Attendance is imperative for gaining points on the door ticket and in class activity, which must be done in person at the beginning and end of class. A 10-minute grace period will be given at the beginning of class to submit your door ticket for credit. If you **miss a day of class**, then contact Dr. Furtak immediately. See Late Work Policy, page 10.

### Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let Dr. Furtak or the student assistant know as early as possible. Some students find Statistics intimidating but all of you have the ability to understand the concepts taught in class. As you will find, building rapport and effective relationships are key to becoming an effective student and professional. Make sure that you are proactive in informing us when difficulties arise during the semester so that we can help you find a solution.

### Complete Assignments

All assignments for this course will be submitted in person or electronically through Canvas unless otherwise instructed. Assignments must be submitted by the given deadline or special permission must be requested from instructor *before the due date*. Extensions will not be given beyond the next assignment except under extreme circumstances.

### Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider disenrolling from a course. Refer to the Sac State Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons includes: (1)

documented and significant change in work hours, leaving student unable to attend class, or (2) documented and severe physical/mental illness/injury to the student or student's family.

### **Incomplete Policy**

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if there is a documented family or medical reason. Incomplete course assignments must be completed within 1 year.

## **Inform Your Instructor of Any Accommodations Needed**

If you have a documented disability and verification from the [Office of Services to Students with Disabilities](#) (SSWD), and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to SSWD and meet with a SSWD counselor to request special accommodation *before* classes start. If you have special test taking arrangements, then you must give Dr. Furtak notification at least 72 hours before the scheduled exam/assignment date.

SSWD is located in Lassen Hall 1008 and can be contacted by phone at (916) 278-6955 (Voice) (916) 278-7239 (TDD only) or via email at [sswd@csus.edu](mailto:sswd@csus.edu).

## **Commit to Integrity**

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

### **Sac State's Academic Honesty Policy & Procedures**

"The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. California State University, Sacramento expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades." Read more about Sac State's [Academic Honesty Policy & Procedures](#)

### **Definitions**

At Sac State, "**cheating** is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means."

"**Plagiarism** is a form of cheating. At Sac State, "plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution."

**Source:** Sacramento State University Library

**Important Note:** Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs. **Course policies are subject to change.** It is the student's responsibility to check Canvas for corrections or updates to the syllabus. Changes will be posted in Canvas.