Does early adversity relate to later risky decision making? Is emotional development different for children of peaceful marriages compared to those of marriages marked by conflict? Do we more easily process scenes about actions with which we are expert than those with which we are novices? Can an eight-week parent training program change children’s ability to sustain their attention? Do atheists and theists differ in their social behaviors? Does having an imaginary friend influence cognitive development?

Psychologists want to find out answers to questions like these and countless others. To do so, we often study just a handful of individuals, couples, or organizations—a sample. While we spend some time describing the performance of this sample, ultimately we want to draw conclusions from this small group to many more people, people who we will never have a chance to measure—a population. How can we do this? How can we make decisions with incomplete information?

In this class, you will learn the basics of frequentist statistics, which is one approach to solving this problem. Statistics are the lingua franca of the sciences, an essential skill for graduate study, and an important tool for a lifetime of careful, critical thought.

Over the next 10 weeks, you will learn graphing and tabling techniques to display sets of data. You will calculate descriptive and inferential statistics by hand and using statistical computing package popular in psychological research. Most importantly, you will understand the results of those calculations, how to interpret the output of the by-hand and computer algorithms that you are learning, and how to select statistical techniques appropriate to a variety of research questions.

Using the knowledge you gain in this class, you will be better equipped to evaluate statistical information reported in popular media as well as in primary research articles. You will also gain skills that will help you analyze and understand data in your own studies in PSY 303.

Students can enter their first statistics course thinking the topic intimidating. By the end of our time together, I hope you find it a little less so, and (dare I say?) even a little interesting.
You will learn some math in this class, but 302 isn't really a math class. It's perhaps more similar to an engineering course than it is like many traditional math courses you might have taken. That is, we will focus on applications and understanding--on getting stuff done with math--rather than simply crunching numbers.

So, while we will work through formulae together, our intent is not that you can mindlessly step through some algorithm, getting the right answer when you plug numbers into an equation. Instead, our focus is on conceptual understanding of statistics. How do formula "behave?" What do the outcomes mean? What do they tell us about our question of substantive interest?

This course employs traditional lectures and weekly lab meetings. To succeed, you should plan on frequently attending all lecture and lab sessions. Be engaged. Ask questions. Take great notes. Go to office hours.

Come prepared to lectures and labs. Read the assigned chapters and assignments before class and take notes (don't just highlight!) on things you want to remember, and on those things that don't make sense to you. Ask your instructors about your readings.

A most important point: Do not get behind in this class! Each chapter, each lecture, each assignment builds on knowledge and skills from those preceding. If you are struggling early on, it is going to be very difficult to catch up. Talk to your instructors earlier, rather than later. If you're waiting until the end of the term, it's probably too late.

Check your e-mail and the Blackboard site often, as we will be frequently posting important information using each.

This is a four-credit course. According to University principles governing credit and contact hours, each credit should be associated with about 30 hours of work over the term. That means you should plan on about 120 hours (10-12 hours a week) of work dedicated to this course. This includes 4 hours a week of lecture and lab, plus 8 hours a week of ding, homework, etc.

All students. The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center (formerly Disability Services) in 164 Oregon Hall at 541-346-1155 or uoeac@uoregon.edu.

If you are repeating this class, or if you are a student with children, a job, or have other circumstances that might affect your ability to devote time to the class, please let me know now so we can discuss strategies to promote your success in this course. If you wait until you have problems in the course it may be too late to salvage your grade, but planning ahead will likely lead to success.

Student athletes. You must let me know during the first week of classes if you will miss class due to travel with a UO athletic team and require accommodation. Requirements for the course will not be relaxed for student athletes, however minor scheduling accommodations may be made (e.g., taking a quiz a few hours early) if planned well ahead of time.

Academic integrity. We take academic integrity seriously. Cheating is defined as providing or accepting information on an exam, plagiarism or copying anyone’s written work, or allowing someone else to copy your work. In addition, lying to try to get points (e.g., lying about having turned in an assignment on-time) is considered academic dishonesty and will be treated as cheating. Discovery that a student has cheated will lead to a grade of F in the course for that student, and we will inform UO’s student conduct coordinator. We retain the right to assign seats for tests, to change an individual's seating for test security purposes, and to require and check ID for admission to tests.

That said, we strongly encourage you to work collaboratively with other students when puzzling through readings or working on homework. But the work you generate, the homework, quizzes, and exams you submit, must be entirely your product.
Who, what, when, & where?

**Robbie Ross** runs labs on Mondays (12:00-1:20, 2:00-3:20, and 4:00-5:20) in 006 Straub. Her office hours are on Thursdays from 3:00 until 5:00 in 432 Straub.

**Job Chen** runs labs on Tuesdays (8:30-9:50, 10:00-11:20, and 12:00-1:20), also in 006 Straub. His office hours are on Mondays and Wednesdays from 2:00-3:00 in 339 Straub.

**Jason Wallin** runs the lecture sessions on Mondays and Wednesdays, 8:30 - 9:50 in 101 Jacqua. His office hours are Mondays from 3:00 until 5:00 in 432 Straub.

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**MATERIALS**

You will need to purchase access to the Aplia online course, which you can do through the bookstore. This application includes an electronic version of your textbook and it will be where you complete a majority of your homework assignments. In addition, it includes valuable study tools, so be sure to browse the application and take advantage of it. Instructions for getting up and running with Aplia are available on Blackboard.


We will also make use of use of iClickers for in-class participation beginning in week 2. Clickers used for previous courses should work. You will find instructions for registering iClickers on Blackboard. You do NOT need to bring iClickers to lab, just to lecture.

You must also have access to Blackboard (http://blackboard.uoregon.edu), which we will use for course management this term. Assignments will be posted to Blackboard, and it is where you will submit your SPSS homework. You will also find there grades, lecture notes, lab handouts, study guides, and other support.

Finally, you will want to bring a reliable calculator to lecture each day, including quiz days. You CANNOT use your cell phone as a calculator during quizzes.
We will have five unit quizzes this term. Each will be 40 minutes long and will feature 30-35 fixed response items. Only your best four quizzes will count, and each will be weighted at 10% of your final grade. Because you have the opportunity to drop your lowest quiz, I will not provide makeup exams. I might be able to offer quizzes in advance of class for students who will be away for university-sanctioned events. This will require notice well in advance of the quiz, however.

The final exam will be cumulative. I will test, especially, themes common to multiple chapters across the quarter (e.g. the logic of hypothesis testing, effect sizes, confidence intervals), and selecting the appropriate test statistic for a research design. This exam, too, will be fixed response items. I will write it to take between 60 and 90 minutes.

I will assign 10 homework activities through Aplia; some will cover two or more chapters. These are due each Tuesday, and must be submitted through the Aplia software no later than 5:00 pm. You cannot submit Aplia assignments late.

I will assign 9 homework assignments (one each week except for week 3, when we have no labs). You will submit these to Blackboard electronically. by Tuesday at 5:00. You cannot submit lab work late.

You will earn participation by a) answering lecture questions, b) generating multiple choice questions for our practice tests, and c) completing two week 1 activities. Other activities may be added in the term. The average of the top 4 students will become 100% participation for the term.

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Lots to do! Quizzes in Weeks 3, 5, 7, 9, and 10. Labs & Aplia HW due on Tuesdays. (Most) questions due on Fridays.
Rationale
PSY 302 is aligned with a primary mission of the University of Oregon: a “commitment to undergraduate education, with a goal of helping the individual learn to question critically, think logically, communicate clearly, act creatively, and live ethically”.

Additionally, PSY 302 is aligned with the American Psychological Association’s Guidelines for the Undergraduate Major. The second goal of those guidelines relates to scientific inquiry and critical thinking, including the ability to ‘interpret, design, and conduct basic psychological research.’

In 302, you will acquire a set of tools to aid your critical inquiry, contribute to a reasoned life, and help you make the best use out of the findings of psychological science.

Finally, PSY 302 aligns with one of the basic learning goals that the UO Psychology Department has for all psychology majors. The department holds that all majors should be able to understand how this principle applies to different designs and data sets (e.g., correlation, analysis of variance).

**Student Outcomes**

Students of PSY 302 learn a variety of statistical terms and procedures. To successfully apply their knowledge to new situations and master the content of Psychology 303 (Research Methods), students also need to acquire a more abstract level of understanding that underlies specific skills.

Here we specify both these abstract principles and the more specific skills:

**Principle 1.** One goal of statistics is measuring the strength of a potential effect, such as the size of any difference between groups/conditions or the relationship among variables. This is done by assessing the size of an effect in a sample (e.g., the difference between two groups) in relation to the total variability in the sample (e.g., the standard deviation around means). Students need to appropriate for a given research question and data structure.

**Skill 1.** Upon reading the description of a study, infer the research question, hypotheses, and study design, and identify the nature of variables involved (dependent vs. independent, scales of measurement).

**Skill 2.** Determine which statistical tests are appropriate for a given research question and data structure.

**Skill 3.** Complete statistical analyses in SPSS, including entering data in the appropriate format, selecting options to get the data needed, and running appropriate tests.

**Skill 4.** Extract key information from the output of SPSS analyses to assess the plausibility of test assumptions, make decisions about hypotheses, and create tables or figures to illustrate the results.

**Skill 5.** Summarize the results of data analyses within an APA-style report, using appropriate statistical terminology and providing an interpretation in light of the research question. This includes presenting the results of hypothesis tests along with appropriate measures of effect size or confidence intervals and relevant descriptive statistics.

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1. http://go.uoregon.edu/ressources/OUmissionstatement.html
3. http://go.uoregon.edu/learning-outcomes/