Welcome to Statistical Methods! This course is the second course in the PSY 301-303 sequence for psychology majors. In PSY 301, you built critical thinking skills for interpreting and understanding psychological research. In 302, you will be trained on how to perform various statistical analyses. In PSY 303, you will use the skills you gained in PSY 301 and PSY 302 to design, analyze, and present your own scientific research study.

This course will introduce you to various statistical techniques that you will then know how to use to analyze your own future datasets. This course heavily focuses both on the concepts underlying statistical techniques in addition to the mathematical calculations needed to actually perform the different analyses. In addition to learning concepts and calculations by hand, in lab you will also learn how to use the statistical software package Jamovi. Knowing how to use at least one statistical analysis software is essential for being a psychological research in modern times. Otherwise, you would spend hours – even days – attempting to calculate some of these analyses by hand! The topics we will cover include descriptive statistics, probability, hypothesis testing, correlation, ANOVA, and regression.

Prerequisites: MATH 243 or one from MATH 241, MATH 246, MATH 251; PSY 301, WR 121; Pre- or coreq: PSY 201, 202
THE ONLINE PLAN

Here are my answers to what I anticipate are the main questions about how this course will take place online:

Lectures

1. Lectures will take place live via Zoom at the scheduled course time (MTWTh 10-10:50am).
   - You can join the Zoom lecture either by going to the following Zoom link:
     - https://uoregon.zoom.us/j/71457584671?pwd=VmwwMzZHQLFpRmoxU3ZmoyajVUYWhJUT09
   - Or you can join by meeting ID:
     - Meeting ID: 714 5758 4671
   - The password is: stats
     - You can either run Zoom from your web browser by going to the link above, or you can download the Zoom app at https://zoom.us.download

2. If you cannot make it to the live lecture, I will also be recording the lectures and making them available on Canvas under “Panopto Recordings.”
   - If you have to watch the recorded lecture, I recommend watching these the same day that they are posted to not get behind on lecture material. Every lecture, we will cover a large amount of material, and the 8-week course moves quickly!

3. During lectures, I will be going over powerpoint lectures. The lectures will often also include by-hand problems that I will give you time to work on during the live lecture. Therefore, it will probably be to your benefit to attend the live lectures because you will be able to ask questions as you work on these problems and get my feedback. I encourage everyone to take notes during these live lectures and to make sure you have paper, pen/pencil, and a calculator so you can work through the statistics problems I give you!

4. Homework assignments, midterms, and the final exam will all be completed online via Canvas. More information to be provided about these below and as we go along in the course.

Jamovi Labs

1. Labs will be conducted live via Zoom on Fridays from 10 – 10:50am.
   - You can join the Zoom lab either by going to the following Zoom link:
     - https://uoregon.zoom.us/j/94281131853?pwd=ZXc2bmIYNS9ScTA1N2s2NVBDUcyQT09
   - Or you can join by meeting ID:
     - Meeting ID: 942 8113 1853
   - The password is: stats
     - You can either run Zoom from your web browser by going to the link above, or you can download the Zoom app at https://zoom.us.download

2. Sarah Donaldson will have office hours on Thursdays, 10am – 12pm. You must sign up for a time slot via https://calendly.com/labsofficehours/15min, or the Zoom room will not be open!
   - Typically, I have found that 15min is enough time to cover most questions. However, if you feel you would like more time, you may sign up for back-to-back time slots.
   - You may also email me for alternative meeting times.
   - I will primarily help with lab assignments, however I can also go over course concepts with you. I likely won’t be able to answer specific homework questions, but can try!
   - Office Hours Zoom link:
     - https://uoregon.zoom.us/j/92739679592?pwd=ZENKd093MjRIUTRqQzRMUENLYVQ4UT09
• Office Hours meeting ID:
  o Meeting ID: 927 3967 9592
• The password is: stats

3. If you cannot make the live lab session, we will also be recording the labs and making them available on Canvas under “Panopto Recordings”.

4. During labs, we will conduct tutorials and show you how to analyze your own data using the software Jamovi. The problems we will go through will follow the conceptual topics covered in class during the week; we will not be covering conceptual material in the lab but will apply that knowledge!

5. The Jamovi homework will be based on the material learned during the lab, so if you couldn’t attend the lab we highly encourage you to watch the lab video before doing the Jamovi homeworks.

LEARNING OUTCOMES

By the end of this course you should be able to:

♦ Read a description of a research study and identify the appropriate statistical technique needed to answer the research question.

♦ Use hypothesis-testing procedures to conduct statistical tests (by hand and using statistical software), draw conclusions, and write up the results in APA style based on your analyses.

COURSE EXPECTATIONS

The summer version of PSY 302 moves at a fast pace. We will be covering key concepts in every class, and most, if not all, of the concepts that we cover will build off each other. My recommendation to succeed in this course is to attend every lecture and lab. Missing a single day of lecture or lab could put you very far behind and make the next lecture and lab session difficult to follow. The best way to learn statistics is through thinking deeply about the concepts, asking questions, and practicing problems on your own – we will do all of these in this class!

Canvas: Canvas will be used as an online resource for the syllabus, lecture slides, assignments, and lab materials. It is recommended that you frequently check Canvas to stay up to date on the course materials that are posted. Important announcements will also be sent via e-mail, so it will benefit you to get in the habit of checking your e-mail daily. If you send an e-mail to the instructor on a weekday, expect a response within 48 hours. If you send an e-mail to the instructor on the weekend, expect a response on the next weekday.

COURSE REQUIREMENTS

Homework

There are two types of homework assignments each week:

♦ Online Homework Assignments (due Sundays at 11:59pm)
  o The online homework assignments will be accessed via Canvas. You can find them under the “Assignments” tab. The questions on these assignments are meant to help prepare you for the types of questions you will be asked on your midterms and final exam, so they are a great way to prepare and study.
  o The online homework assignments will typically be due Sundays at 11:59pm, except for the last week
of class, when the assignment will be due Tuesday at 11:59pm.
- The solutions to the homework assignments become available the next day at 5pm.
  - If you do submit it before 5pm the next day, it will be 10% off. Assignments submitted after 5pm the following day will receive a zero.

♦ Jamovi Homework Assignments (due Thursdays at 11:59pm)
  - A large component of this course is the statistics labs that you will participate in on Fridays.
  - In lab, you will be learning how to use a statistical software called Jamovi.
  - Jamovi assignments will typically be due Thursdays at 11:59pm, **except for the last week of class, when the assignment will be due Tuesday at 11:59pm.**
  - Jamovi assignments will lose 10% of points every day they are late, including weekend days.
  - The Jamovi assignments can be accessed via Canvas.
    - You will receive additional information about the format of the Jamovi homework assignments and your lab instructors’ expectations regarding these assignments in your first lab session on Friday.

**Midterms**

There will be 2 midterms in this course. Midterms will be multiple-choice and/or by-hand calculation problems. These midterms will be completed online via Canvas. They are closed-notes exams, meaning it is **not** permitted to use any other material or study aids (i.e., lectures, homework questions, the internet etc.) while completing the exam. The midterms will be available online all day the day that they are listed on the syllabus, but once you begin the exam, there will be a 1.5-hour time limit for completing it.

The first midterm is on **Tuesday, July 13th** and covers the material we covered through the end of week 3. The second midterm is on **Tuesday, July 27th** and focuses on the material we covered in weeks 4 and 5, but because concepts in this course build off each other, you will still need to know content from previous weeks. **Make-up exams will only be given in cases of documented emergencies.** If you miss an exam for non-emergency reasons, you will receive a zero for that assignment.

**Final Exam**

The final exam will be **cumulative** and held on the final day of class (August 12th) via Canvas. A major component of the final will be selecting the appropriate statistical test to answer a given research question. Knowing when to use which statistical test (i.e., how to appropriately analyze your data) is one of the fundamental goals of this course.

The questions on the final exam will be in similar format to the formatting of questions on the midterms. **The final exam is closed-notes exams, meaning it is **not** permitted to use any other material or study aids** (i.e., lectures, homework questions, the internet etc.) while completing the exam. The final exam will be available online all day on the day that it is listed on the syllabus, but once you begin the exam, there will be a 2-hour time limit for completing it.

**EXTRA CREDIT OPPORTUNITY**

There will be an opportunity to earn up to 2 points of extra credit on your final grade in this course by participating in research studies. There are ongoing research studies conducted in the Psychology and Linguistics departments. You can sign up to participate in one of these studies by signing up online via a website called SONA: [https://uopsych.sona-systems.com](https://uopsych.sona-systems.com)

The studies range in length from ½ hour to 2 hours or longer (this may vary now that all research studies are being offered solely online). During your first visit to the SONA website, you will need to request a username
and password. One you are logged in, you will be asked to complete a short screening questionnaire that will potentially make you eligible for additional studies. SONA will show you a list of studies that are available to you. After participating in a study, you will be electronically credited for the time allotted for that study.

More information and instructions on how to participate in online research is covered in a video here: https://blogs.uoregon.edu/researchwithhumanparticipants/instructions-for-participants/

An important aspect of research participation is that it is voluntary. Therefore, if you would like to earn extra credit but prefer not to participate in a research study, then you can complete an alternative research paper assignment. If you are interested in this alternative assignment, please contact me no later than the end of week 6 of this course. This assignment will involve me assigning you one or more statistics-related article(s) and asking you to write an essay about them.

**You must have completed your participation in the research studies by the end of Week 8 to get credit.**
STUDENT WORKLOAD

Overall: For a 4 credit class, the university expectation is that you spend approximately 12 hours per week in class and outside of it.

GRADING

Final grades in this course will be determined by the following:

- Online Homework: 15%
- Jamovi Homework: 15%
- Midterm 1: 20%
- Midterm 2: 20%
- Final Exam: 30%

Grades will be distributed as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A+</td>
<td>99-100%</td>
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<tr>
<td>A</td>
<td>92-98%</td>
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<tr>
<td>D-</td>
<td>60-61%</td>
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<tr>
<td>F</td>
<td>0-59%</td>
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</tbody>
</table>

Please see the psychology department guidelines for a description of the type of achievement that each grade signifies: [http://psychology.uoregon.edu/courses/department-grading-standards/](http://psychology.uoregon.edu/courses/department-grading-standards/)

CLASS ACCOMMODATIONS

Accessible Education Center (AEC)

If you have a documented disability and anticipate needing accommodations in this course, please notify me as soon as possible. Also, please request that a counselor at the Accessible Education Center (uoaec@uoregon.edu) send a letter verifying the type of accommodation that is appropriate. The sooner I am notified, the sooner I will be able to arrange certain aspects of the online course to make it accessible to everyone.

For a list of resources provided by the Accessible Education Center, please see [http://aec.uoregon.edu](http://aec.uoregon.edu)

Students for Whom English is a Second Language

Foreign language dictionaries are permitted during exams. If you find that you do need additional time to complete the first exam, please let me know, and we will make arrangements ahead of time for all future exams.

ACADEMIC INTEGRITY

We take academic integrity seriously. Cheating is defined as providing or accepting information on a quiz or 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. All academic misconduct and suspected misconduct will be reported to the Office of Student Conduct. We will inform UO’s student conduct coordinator.

For more information about academic misconduct, see the University Student Conduct Code at [http://dos.uoregon.edu/conduct](http://dos.uoregon.edu/conduct).

COLLABORATION

We encourage collaborative learning, but you must produce (and we must assess) individual work. You may discuss homework problems with other students and the instructors. Talking over problems and
discovering why you got different answers can help promote deeper understanding of concepts. However, each student must submit individual homework assignments. You should **not just copy the work that someone else did and submit it as your own**. Doing so will be considered cheating and violating academic integrity as discussed above.
### Course Schedule*

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading Sections</th>
<th>Assignments/Exams</th>
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<tbody>
<tr>
<td>1</td>
<td>6/21 - 6/24</td>
<td>Introduction, Variables, Frequency Distributions, Central Tendency, Variability</td>
<td>2.2.1 – 2.2.5 4.1 – 4.3 5.1, 5.3</td>
<td>Homework 1 due 6/27</td>
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<tr>
<td>Lab</td>
<td>6/25</td>
<td>Lab 1: Intro to Jamovi, Central Tendency, &amp; Variability</td>
<td></td>
<td>Jamovi HW1 due 7/1</td>
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<tr>
<td>2</td>
<td>6/28 – 7/1</td>
<td>z-Scores, Normal Distribution, Probability, Sampling, &amp; Confidence Intervals</td>
<td>4.5 7.3.1, 7.5 8.1 – 8.2 8.3 – 8.5.2</td>
<td>Homework 2 due 7/4</td>
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<tr>
<td>Lab</td>
<td>7/2</td>
<td>Lab 2: z-Scores &amp; Normal Distribution</td>
<td></td>
<td>Jamovi HW2 due 7/8</td>
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</table>
| 3    | 7/5 – 7/8 | **No Class Monday, July 5th**  
Introduction to Hypothesis Testing,  
Single-Sample z-Test, Single Sample t-Test | 9.1.2 – 9.4.3 11.1 – 11.2.3 11.7 – 11.7.1 | Homework 3 due 7/11 |
| Lab  | 7/9 | Lab 3: Single-sample z-Test & t-Test                                  |                  | Jamovi HW3 due 7/15 |
| 4    | 7/12 – 7/15 | Independent Samples t-Test, Paired-Samples t-Test                   | 11.3 – 11.3.7 11.5 – 11.5.2 11.7.2 | MIDTERM I – Tuesday, 7/13  
Homework 4 due 7/18 |
| Lab  | 7/16 | Lab 4: Independent & Paired Samples t-Tests                           |                  | Jamovi HW4 due 7/22 |
| 5    | 7/18 – 7/22 | Between Subjects One-Way ANOVA, Repeated Measures One-Way ANOVA       | 13 – 13.2.3 13.4 – 13.5.2 13.6, 13.8 | Homework 5 due 7/25 |
| Lab  | 7/23 | Lab 5: Between & Repeated Measures ANOVA                              |                  | Jamovi HW5 due 7/29 |
| 6    | 7/26 – 7/29 | Factorial ANOVA                                                      | 14, 14.2 – 14.3 | MIDTERM 2 – Tuesday, 7/27  
Homework 6 due 8/1 |
| Lab  | 7/30 | Lab 6: Factorial ANOVA                                                |                  | Jamovi HW6 due 8/5 |
| 7    | 8/2-8/5 | Factorial ANOVA, Correlation                                         | 12.1 – 12.1.3 12.2 | Homework 7 due 8/10* |
| Lab  | 8/6 | Lab 7: Correlation & Regression                                       |                  | Jamovi HW7 due 8/10* |
| 8    | 8/9 – 8/12 | Correlation & Regression  
8/11 – Final Review  
8/12 – Final Exam             | 12.3 – 12.4.2 12.6 – 12.6.1 |                  |
| 8/13 |      | No Lab                                                                |                  |                   |

*Changes may be made to the course schedule and/or any other components of this syllabus, if necessary.*