

PSY 712 Psychometrics

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by the students Second, this course covers the development of personality writing scale construction, item analysis, and test revision. This lecture, and students apply the theory they have learned by designing and revising existing ones. In this course, the primary focus will be on personality, intelligence, interests, etc.) but the same principles apply

homogeneous subgroups on correlations and factor analyses will be discussed in lecture and explored using data analysis with actual research data. As well, in one of the term projects, students are asked to consider how their constructs and research conclusions might differ if participants from another culture completed their measures.

This course has two additional objectives. One of these is to provide students with additional experience analyzing data using R (a powerful statistical software package that is also free). To support this goal, students will evaluate the quality of an existing test using R. The other goal is to provide students with additional experience in writing APA-style research reports. To support this goal, students will write a research report analyzing the quality of an existing test. They will write this paper one section at a time and receive feedback on each section.

Relative Breakdown

Task	Percentage of Course Grade
Evaluating tests and questionnaires	60%
Designing tests and questionnaires	30%
Analyzing data using R	5%
Writing research reports	5%

Course Format

This class is delivered using a flipped format. In a traditional class, lectures are delivered during class time, and students complete projects and exercises at home. In a flipped class, lectures are completed at home, and students complete projects and exercises in class.

In PSY 712, students will be actively engaged during class time: elaborating, critiquing, discussing, analyzing, and writing. Class time will focus on a series of exercises. Although I have taught this course for about 15 years, this is the first time I have taught it in an online format. Therefore, I will ask you for brief feedback after each class.

class work within the broader field of psychometrics, and within the context of your research and clinical work. While reading, you should attempt to apply the ideas to your own research and clinical practice. You will share your reflections in WebCampus discussions.

Required Readings

Lecture transcripts are required readings and will be available through WebCampus.

Miller, L. A., & Lovley, R. L. (2020). *Foundations of Psychological Testing, 6th ed.* Sage. Available from UNLV bookstore or the Sage website.

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology, 78*, 98-104. Available through WebCampus.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*, 272-299. doi:10.1037/1082-989X.4.3.272 Available through WebCampus.

Recommended Readings

Haladyna, T. M., Downing, S. M., & Rodriguez, M. C. (2002). A review of multiple-choice item-writing guidelines for classroom assessment. *Applied Measurement in Education, 15*, 309-

I will grade lab assignments and projects using behavioral observation scales that are based

that the only hands that touched the keyboard or mouse belong to members of your group, and no information was ever copied from any file where non-group members touched the keyboard or mouse.

Similarly, although you will be working in groups, the assignments are not simply group assignments. **Everything that has your name on it must be something that you yourself helped to create.** Having one person do an assignment and putting multiple names on it is **NOT** acceptable. If someone is unable to contribute to one of the assignments, they can simply skip it: This will have only a small influence on their final course grade, because the final projects are worth far more than the individual assignments. Alternatively, if a student is unable to contribute to an assignment, then they may contact Dr. Barchard about a make-up assignment.

In addition, students are strongly encouraged to find one or more study partners to assist them in learning the material. You can discuss difficult topics and share notes for any classes you miss.

Workload

This course is a lot of work. Previous students reported that they spent approximately 2 hours per day on this course, not including class time, for a total of 10 – 15 hours per week. Almost all previous students have also recommended that I retain all of the lecture content and all of the project content. The workload will be quite high for the first three weeks and high for the middle of the course, but – if you incorporate my feedback right after you receive it – the workload will be somewhat lighter for the last

- Understand and apply the logic of hypothesis testing.
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Lab Assignments

Lab assignments will be due Wednesday at 2pm, unless otherwise specified.

Project 1

Lab 1-1: Drafting Rating Scale

Lab 1-2: Editing and Formatting Rating Scale

Lab 1-3: Final Rating Scale

Project 2

Lab 2-0: Proposal

Project 2: DataCamp Courses on R (I recommend you complete these before Friday's class)

DataCamp online materials available at <https://www.datacamp.com/>

Chapter

You Should Complete

Introduction to R

All chapters

Introduction to Importing Data in R

All chapters

Intermediate Importing Data in R

Chapter: Importing data from statistical software packages

Cleaning Data in R

All chapters

Exploratory Data Analysis in R

All chapters

Correlation and Regression in R

Ch 1: Visualizing two variables; Ch 2: Correlation

Factor Analysis in R

Ch 1: Evaluate your measure; Ch 2: Multidimensional EFA

Project 2: Part A

Lab 2-1: Introduction

Lab 2-2: Method: Sample

Lab 2-3: Method: Measures and Procedures, Appendix A

Project 2: Part B

Lab 2-4: Recoding and Internal Consistency

Lab 2-5: Validity

Lab 2-6: Item Analysis for Internal Consistency

Lab 2-7: Item Analysis for Validity

Project 2: Part C

Lab 2-8: First Principle Component

Lab 2-9: Number of Factors

Project 2: Part D

Lab 2-10: Rotation and Interpretation

Lab 2-11: Factor Scores

Tentative Course Schedule

Week	Date	Lectures	Readings	Lab	Project 1 handout	Project 1 due Wed 2pm	DataCamp recommended	Project 2 handout	Project 2 due Wed 2pm	Other Events
1	22-Jan	Item writing	Ch 1, 2; handouts; Recommended Lenzner & Medold; Haladyna et al.; Thorndike	Proj 1: Lab 1-1	Overview, Lab 1-1		Introduction to R	Proposal		Experimental Interview Day
2	29-Jan									

University Policies

Public Health Directives

Face coverings are currently mandatory for all faculty and students in the classroom. Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at [Health Requirements for Returning to Campus](https://www.unlv.edu/coronavirus/health-requirements), <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the [UNLV Student Conduct Code](https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf), https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the 3 (e)4 dd (t is)1 (p (U)4 (N)Tds)1 (u)2 (5>)1 ((nt)-2 e (t)-2 (ho

Incomplete Grades

The grade of “I” (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student’s control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of “F” will be recorded, and the student’s GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the “I” grade.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the [Libraries’ Research Consultation](https://guides.library.unlv.edu/appointments/librarian) website, <https://guides.library.unlv.edu/appointments/librarian>. You can also [ask the library staff](https://ask.library.unlv.edu/) questions via chat and text message at <https://ask.library.unlv.edu/>.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Classwork policy, under Registration Policies, on the [Academic Policies](https://catalog.unlv.edu/content.php?catoid=32&navoid=8271&hl=) webpage, <https://catalog.unlv.edu/content.php?catoid=32&navoid=8271&hl=>.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student submits official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a “Drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate’s policy, and an infringement on the student’s right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

Rebelmail

Rebelmail is UNLV's official email system for students and by University policy, instructors and staff should only send emails to students' Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Sending emails within WebCampus-Canvas is also acceptable.

Tutoring and Coaching

The Academic Success Center (ASC), at the Claude I. Howard Building, provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the [ASC website](https://www.unlv.edu/asc), <https://www.unlv.edu/asc>, or call 702-895-3177. The ASC is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the [Writing Center](https://writingcenter.unlv.edu/), <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3, Room 301 (CDC 3-301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.

Diversity Statement

As an institution of higher learning, UNLV represents a rich diversity of human beings among its faculty, staff, and students, and is committed to aspiring to maintain a Campus environment that values that diversity. Accordingly, the University supports understanding and appreciation of all members of its community, regardless of race, sex, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, gender, gender identity, marital status, pregnancy, genetic information, veteran status, or political affiliation. Please see [Univ-2n\(t-2\)1b-ortv6 \(s\)1 aa 0 Tw / \(ti 0 Td\(\)Tjm6 \(s](#)