Summer 6-1-2022

EDLD 519.51: Measurement and Analysis Data

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Syllabus of EDLD 519: Measurement and Analysis Data

Department of Educational Leadership

University of Montana

Phyllis J. Washington College of Education

COURSE RELATED INFORMATION

Instructor Information

Liqin (Shirley) Tang
Department of Educational Leadership
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Office: ED 206

Classes Dates & Location

This is an online course that runs from June 13 to July 15 (5 weeks in total).

Virtual office hours by appointment

Please send an email with any questions you may have, or if you prefer, we can make an appointment to talk over the phone or on campus.

Research Support

Kate Zoellner
Associate Professor and Education Librarian
Maureen and Mike Mansfield Library
406.243.4421 phone
800.240.4939 toll-free
kate.zoellner@umontana.edu

Tech Support

UMOnline: 406-2434999
umonline-help@umontana.edu

COURSE DESCRIPTION

Understanding data terms and the role of data is critical to ensuring the systemic functionality and cultural integration of data usage for student and school achievements. The purpose of this course is to present the understanding and analysis theory necessary to ensure that the student of educational leadership is capable of making measurements consistent with the nature of educational data, submitting these data to appropriate analysis, and drawing constructive conclusions from the analysis.

COURSE OBJECTIVES

The objectives of the course is to help students to:

- understand measurement and analysis concepts and terminology.
- become a critical reader of research.
- grasp the significance and importance of course work in research methods.
- grasp the significance and implications of measurement and analysis of educational data in the process of improving schools.
- use computer technology in numerous components of research.
- view research as a means to integrate curricula.
- critically evaluate educational data.
- critique and utilize research methods.
- understand the relevance of research to practice.
- interpret and analyze assessment data.
- present data-driven improvement plans in an easily understandable way by stakeholders.
- utilize research as a means to build a personal knowledge base, and
- utilize research to contribute to an appropriate knowledge base.

ESSENTIAL QUESTIONS

1. What can statistics tell us about the real-world?
2. Can we ultimately prove anything with statistics?
3. How can we use statistical methods to draw accurate conclusions and solve problems in the real-world?
4. Do statistics lie?
5. Why is data collected?
6. How can data be described?
7. How can graphs be used to examine data?
8. What are the various methods of data collection?
9. How can the distribution be applied to real-world applications?
10. Why are confidence intervals and tests of significance important?
11. How is sampling used and why is it important?

INSTRUCTIONAL METHODS

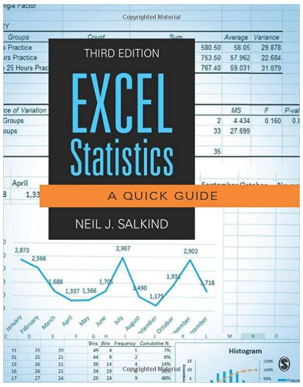
This course will provide several teaching and learning formats to promote personal and professional growth. Formats will include Moodle lessons, group discussions, individual reflective and synthesis writing, and independent reading.

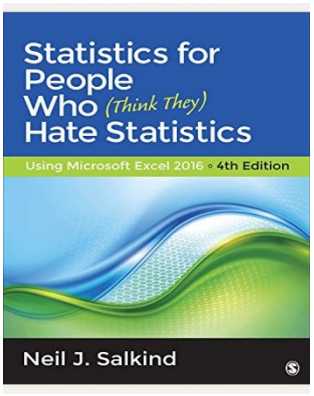
All students will need to have Microsoft Excel with the statistics package installed. Instructions for installing the Data Analysis Toolpak will be given on the Moodle. Using a Windows bases system is recommended as Excel tends to function better in that format.

REQUIRED READINGS

Required textbook:

1. Neil J. Salkind (2016). *Excel Statistics: A Quick Guide* (3rd Edition). SAGE Publications.





Optional Textbook

1. Neil J. Salkind (2017). *Statistics for People Who (Think They) Hate Statistics --- Using Microsoft Excel 2016* (4th Edition). SAGE Publications.

COURSE EVALUATION

Students will be assessed based on their class discussion, participation in the activities and completion of assignments. Grading plan will be based on the following:

ASSESSMENT EVENTS	PERCENTAGE
Weekly Class Discussion	**20%**
Quizzes	**30%**
Weekly Excel Spreadsheet Tasks	**20%**
Final Project: Concept Map	**30%**

Weekly Class Discussion (20%)

Assigned Discussions will be required for each weekly class in weeks 1-5. Students are expected to participate in weekly discussion, based on discussion questions/prompts, and complete the reading

ahead of time (including any supplements that may be added). Class discussion will play an integral role in how much learning takes place during this class. Both quality and quantity of the discussion will be evaluated in terms of students' contribution to class. The most valuable contributions students can make come through integrating discussion outcomes with what students have learned from other courses and other students, as well as what students have experienced in the outside world.

Students will need to post their initial response to the discussion question or prompt before 11:59 p.m. on Friday from Monday's discussion question/prompt. In addition, students need to submit their comments or responses to at least two other students' responses before 11:59 p.m. on Sunday. Postings that occur after the midnight deadlines will result in deducted points.

Weekly Discussion Timeline

Monday	Tuesday	Wednesday	Thursday	Friday	Sunday
Class opens for the week in Moodle and discussion question/prompt posted by 5:00 p.m. on Monday.		All assignments of Section A, Week One, is due at 11:59 pm, June 15		Initial response to weekly discussion questions posted by 11:59 p.m. on Friday.	Comments or response to two other students posted by 11:59 p.m. on Sunday.

Assessment criteria for this assignment is at the end of the syllabus.

Quizzes (30%)

Students need to take a quiz each week. Students may use their notes but must work individually on the quiz. The deadline of each weekly quiz is by 11:59 p.m. on Sunday.

Weekly Excel Spreadsheet Tasks (20%)

Statistical procedures that are discussed and demonstrated in class will be followed by weekly assignments that are due at 11:59 p.m. on Sunday. Students are to complete the given statistical procedure in Excel and then provide a brief narrative about the meaning of the outcome. Screencasts are available for all class assignments.

Concept Map (30%)

The final project will be the development of a concept map about the whole course, using the computer to generate the content. There are many different programs that can be used to accomplish this task. (https://en.wikipedia.org/wiki/List_of_concept-_and_mind-mapping_software). Students will create a concept map or online game of the whole course. Concept maps (sometimes called mind maps) are graphical tools for organizing and representing knowledge and understanding. The maps should include statistic concepts, usually enclosed in circles or boxes of some type, and then relationships between the concepts indicated by a connecting line linking two concepts.

Make sure to google concept maps and learn what they are. Students need to email their concept or mind map to the instructor. The concept or mind map will be due at 11:59 p.m., July 15th.

Assessment criteria for this assignment is at the end of the syllabus.

Due Date of Assignments

Refer to the Moodle Page for each unit to see topics and readings. The assignments are due based on the following table.

DEADLINES	ASSIGNMENTS
11:59 pm June 15	All Assignments of Section One in Week One (Excel spreadsheet tasks and quiz)
11:59 pm June 19	All Assignments of Section Two in Week One (weekly discussion, Excel spreadsheet tasks and quiz)
11:59 pm June 26	All Assignments in Week Two (weekly discussion, Excel spreadsheet tasks and quiz)
11:59 pm July 3	All Assignments in Week Three (discussion, Excel spreadsheet tasks, and quiz)
11:59 pm July 10	All Assignments in Week Four (discussion, Excel spreadsheet tasks, and quiz)
11:59 pm July 15th	All Assignments in Week Five (discussion, Excel spreadsheet tasks, and quiz)
11:59 pm July 15th	Final Project: Concept Map

Final Grading

PERCENTAGE GRADE	LETTER GRADE
90-100%	A
80-89%	B
70-79%	C
60-69%	D
Below 60%	F

COURSE POLICIES, PROCEDURES, AND EXPECTATIONS

Academic Honesty

All students will be expected to comply with the academic honesty policies described in the *University of Montana Student Conduct Code,* which embodies the ideals of academic honesty, integrity, human rights and responsible citizenship. It is also expected that each student will foster a collegial learning environment by sharing his or her experiential and academic knowledge and practices, as well as respectfully listening to the viewpoints of others and following basic netiquette rules. Students who need individualized accommodation due to a disability should contact the professor at the beginning of the course. For more information, visit the Disability Services website or call (406) 243-2243 (voice).

Assignment Due Dates/Times

All activities are due on the designated day by 11:59 p.m. Mountain Standard Time. If students have extenuating circumstances, please let the instructor know before the work is due, so that an accommodation can be considered. Assignments not submitted on the due date will not be considered for grading, unless students contact the instructor prior to the due date. Students are responsible for investing the time necessary to consider the issues at a level appropriate for a graduate student.

Technical Requirements

You need computer or laptop access to open files, download all the reading materials and email written assignments to the instructor before the due date. Course content includes PPTs, PDF files or Microsoft Word Documents.

Written Assignments

Written assignments must reflect the individual's original work, and follow the style articulated in the Publication Manual of the American Psychological Association (APA) 7th edition. Properly cite references to works by other authors.

Specification for Assignments

All assignments are expected to be free of grammatical errors. They should be saved in Microsoft Word or PowerPoint and emailed to the instructor before the due date. Citations and references should follow the American Psychological Association (APA) style of citation. For an in-depth review of APA formatting and style guidelines, please visit: http://owl.english.purdue.edu/owl/resource/560/02/

Special attention should be given to the first week, which include two sections. The first section starts from June 13 to June 15, and the second section is from June 16 to June 19. The due date of all assignments of **Section one** is on 11:59 pm, June 15, and the due date of assignments of Section two is on 11:59 pm, June 19.

Course Schedule

DATES	TOPICS AND READINGS
June 13- June 19, including two sections	**WEEK 1** **Section One (From June 13- June 15)** Contents ✧ Introduction and syllabus ✧ Definitions ✧ Scales of Measurement ✧ Variables ✧ Quantitative research outline ✧ Excel Assignments: (a) Read *Excel Statistics* by Salkind (pp. 1-19, 92-93) (b) Read *Statistics for People Who (Think They) Hate Statistics* by Salkind (pp. 5-78) (c) Watch the screencasts (d) Do a Bio, Excel spreadsheet tasks & quiz **Section Two (From June 16- June 19)** Contents ✧ Measures of Variability ✧ Range, Standard Deviation and Variance ✧ The Normal Curve ✧ Frequency Distributions ✧ Using Excel to Create Charts Assignments: (a) Read *Excel Statistics* by Salkind (pp. 20-29, 123-124) (b) Read *Statistics for People Who (Think They) Hate Statistics* by Salkind (pp. 79-125) (c) Watch the screencasts (d) Do weekly discussion, Excel spreadsheet tasks, and quiz
June 20- June 26	**WEEK 2** Contents ✧ Correlation and Covariance ✧ Coefficient of Determination ✧ Linear Regression ✧ Reliability and Validity Assignments: (a) Read *Excel Statistics* by Salkind (pp. 42-57, 119-123) (b) Read *Statistics for People Who (Think They) Hate Statistics* by Salkind (pp. 127-174, 328-348) (c) Watch the screencasts (d) Do weekly discussion, Excel spreadsheet tasks, and quiz

June 27-July 3	**WEEK 3** Contents ✧ Hypothesis ✧ Probability and Normal Curve ✧ Central Limit Theorem ✧ Z Scores and Percentiles ✧ Significance and P-value Assignments: (a) Read *Excel Statistics* by Salkind (pp. 30-41) (b) Read *Statistics for People Who (Think They) Hate Statistics* by Salkind (pp. 179-238) (c) Watch the screencasts (d) Do weekly discussion, Excel spreadsheet tasks, and quiz
July 4-July 10	**WEEK 4** Contents ✧ Standard Error of the Mean (SEM) ✧ One Sample Z-Test ✧ Independent T-Test ✧ Dependent T-Test Assignments: (a) Read *Excel Statistics* by Salkind (pp. 62-73, 102-110) (b) Read *Statistics for People Who (Think They) Hate Statistics* by Salkind (pp. 241-283) (c) Watch the screencasts (d) Do weekly discussion, Excel spreadsheet tasks, and quiz ➢ **Concept Map Will be Due Next Week!**
July 11-July 15, including two	**WEEK 5** Contents ✧ One -Way ANOVA ✧ Two-Way ANOVA ✧ Non-Parametric Tests ✧ Chi-Square Assignments: (a) Read *Excel Statistics* by Salkind (pp. 58-61, 111-118) (b) Read *Statistics for People Who (Think They) Hate Statistics* by Salkind (pp. 285-327, 351-371) (c) Watch the screencasts (d) Do weekly discussion, Excel spreadsheet tasks, and quiz ➢ **Concept Map is Due at 11:59 p.m. on July 15th!**

RUBRICS OF ASSESSMENT EVENTS

Weekly Discussion Rubric (20%)

	3-4 Points	1-2 Points	0 Point
Weekly Class Discussion	Thorough contributions that stimulate discussion including interacting with other students in your assigned group and meeting both posting deadlines (initial and response)	Contributing only in a cursory manner or not responding to at least one posting from a student or missing either posting deadline (initial and response)	Do not participate in the discussion

Concept Map Rubric (30%)

	Exemplary	Acceptable	Unacceptable	Points
Organization	**13-15 points** ✓ One page ✓ Well organized ✓ Logical format ✓ Contains an in-depth amount of information	**8-12 points** ✓ One page ✓ Somewhat organized ✓ Contains only a few main concepts	**0-7 points** ✓ One page ✓ Choppy and confusing ✓ Contains a limited number of concepts	15 points
Content	**13-15 points** ✓ Linking words demonstrate superior conceptual understanding	**8-12 points** ✓ Linking words are easy to follow but at times ideas are unclear. ✓ Links are not precisely labeled.	**0-7 points** ✓ Linking words are difficult to follow. ✓ No links.	15 points

Note that this syllabus is tentative. It will be revised if necessary. After it has been updated, the instructor will upload the new version to the Moodle shell immediately.

APPENDIX A

PROFESSIONAL STANDARDS FOR STUDENT PERFORMANCE

Graduate students in the Department of Educational Leadership at The University of Montana are expected to:

- Demonstrate professional vision in the practice of educational administration
- Accept responsibility and accountability for class assignments in their role as members of the class
- Demonstrate growth during the period of their graduate career
- Demonstrate good decision making and an awareness of organizational issues from a variety of perspectives
- Demonstrate imagination and originality in the discussion of educational leadership issues
- Understand the relationship between theory and practice and the value of reflective leadership
- Demonstrate a moral, humanistic, ethical and caring attitude toward others
- Demonstrate an ability to build trust and positive relationships with others
- Demonstrate a tolerance for diversity and a warm acceptance of others regardless of their backgrounds or opinions
- Demonstrate emotional stability and an ability to work well with other members of the class, including the instructor
- Demonstrate an ability to express himself/herself well in speech and writing, and
- Demonstrate mastery of fundamental knowledge of course content and an understanding of its application

FAILURE TO DEMONSTRATE THE AFOREMENTIONED QUALITIES ON A CONSISTENT BASIS MAY RESULT IN REMOVAL FROM CLASSES AND/OR THE EDUCATIONAL LEADERSHIP PROGRAM.

APPENDIX B: COVER PAGE

Name of the Assignment

Your Title

by
Your Name
790 number

Submitted to
Instructor: Liqin (Shirley) Tang

In Partial Fulfillment of the Requirements of
EDLD 519: Measurement and Data Analysis

The University of Montana
Summer 2022