Evaluation, Measurement, and Research 6450 (CRN 45793)
Data Analytics I: Designed Studies
Fall 2017

Tuesdays 9:00-11:45 am
4705 Sangren Hall (classroom)
2330 Sangren Hall (lab)
Please plan to meet in the classroom, 4705 Sangren, unless otherwise noted.

Instructor: Jessaca Spybrook, Ph.D.
Office: 3571 Sangren
Phone: (269) 387 – 3889 (Office)
Email: jessaca.spybrook@wmich.edu *Email is the best way to reach me. Monday through Friday I will typically respond to email within 24 hours.*
Office Hours: 12:15-1:15 Tuesdays or by appointment

Course Web site:
We will be using the WMU elearning system for this course. You can access elearning through the WMU portal and the e-learning button. Lectures, announcements, assignments, data sets, and any other classroom materials will be posted on the class site. Assignments must also be submitted through the web site. Please check the elearning site frequently. I will post updates and announcement for the class on the site.

Course Pre-requisites:
Successful completion of EMR 6400, Introduction to Evaluation, Measurement, and Research or permission of instructor.

Catalog Description:
This class focuses on the principles of research design and data analysis. Primary topics include: descriptive statistics, t-tests, chi-square, correlation, analysis of variance, post-hoc comparisons, non-parametric statistics, and statistical power. All topics will be taught from an applied perspective. Students will learn how to use statistical software for analyses.

Course Objectives:
The four main objectives for this course are:

1. Feel comfortable reading, writing, and talking about statistics.
2. Be able to identify when a particular statistical method is appropriate and apply the method.
3. Perform statistical analyses using SPSS.
4. Interpret the results of statistical analyses in a clear and understandable manner.

Required Text:
Lomax, R. G., & Hahs-Vaughn, D. L. (2012).*An Introduction to Statistical Concepts*, 3rd edition. New York: Routledge.

Optional Text:
Morgan, S.E., Reichert, T., & Harrison, T.R. (2002).*From numbers to words: Reporting statistical results for the social sciences*. Boston: Allyn and Bacon, Inc.

American Psychological Association (2009).*Publication manual of the American Psychological Association: Sixth Edition*. Washington D.C.: American Psychological Association.

Optional Software:

We will use SPSS V24 for our statistical computing package. The computers at the labs on campus have SPSS installed. Students who are interested in purchasing the software should buy the SPSS Graduate Pack (http://www-03.ibm.com/software/products/en/spss-stats-gradpack).

Course Expectations:
This course provides an introduction to statistics for students in education and social sciences. The course covers an introduction to quantitative research, descriptive statistics, and inferential statistics. All concepts will be taught from an applied perspective.

Course expectations include regular attendance, participation in class discussions and activities, completion of reading for class, and completion of all major assignments, weekly exercises, and the final. All assignments and weekly exercises must be submitted on time via the class web site through E-learning. All major assignments must follow APA style. Weekly exercises do not need to follow APA style.

Students are strongly encouraged to form study groups for the class. However, each student must submit his/her own assignments and will be graded individually.

Weekly Exercises:
There will be a total of 9 weekly exercises. Each exercise will be worth 5 points. Completed weekly exercises will earn 5 points. Points will be taken off for incomplete exercises. Late weekly exercises will NOT be accepted. All weekly exercises will be posted and turned in through E-learning. Solutions will be posted online after the class period in which they are turned in.

Major Assignments:
There are 4 major assignments in this class. Each assignment is worth 45 points. All assignments will be posted on the course web site at least two weeks prior to the due date. Major assignments will be turned in as well as returned to the student through the course web site. Late assignments will be penalized a 10 percent point reduction per day they are late. Assignments must follow APA style.

Final Exam:
The final exam is an applied exercise. It is worth 75 points. Students will be given 2.5 hours to complete the final exam. The exam will be open note and open book. The final will not require you to use SPSS.

Course Evaluation:
There are a total of 300 possible points in the class. The points are distributed as follows:

Major Assignments	180 Points (60 percent)
Final	75 Points (25 percent)
Weekly Exercises	45 Points (15 percent)

Below is the grading scale for the class[1]:

Total Points	**Percentage**	**Letter Grade**
284 – 300 points	(95 – 100 percent)	A
269 – 283 points	(90 – 94 percent)	AB
254 – 268 points	(85 – 89 percent)	B
239 – 253 points	(80 – 84 percent)	CB
224 – 238 points	(75 – 79 percent)	C
Below 224	(less than 75 percent)	E

[1] Incompletes will only be given in extreme emergencies and a written request with justification is required.

Tentative Course Schedule[2]

Date	Topic	Readings[3]	Major Assignments	Weekly Exercises
Sept. 5	Introductions, Course Overview, Introduction to Quantitative Research, Variables, Measurement, Intro to SPSS	Chapter 1		
Sept. 12	Descriptive Statistics, Graphical Representations, Data Entry in SPSS	Chapters 2 and 3		Weekly Exercise 1 due
Sept. 19	Sampling, Sampling Distributions, Central Limit Theorem	Chapters 4 and 5		Weekly Exercise 2 due
Sept. 26	Hypothesis Testing (1 sample)	Chapters 6		Weekly Exercise 3 due
Oct. 3	Hypothesis Testing (2 sample)	Chapter 7	Major Assignment 1 due	
Oct. 10	One-way ANOVA (1 between)	Chapter 11 and 12		Weekly Exercise 4 due
Oct. 17	One-way ANOVA (1 within)	TBD		Weekly Exercise 5 due
Oct. 24	Two-way ANOVA with Interactions (2 between)	Chapter 13	Major Assignment 2 due	
Oct. 31	Two-way mixed design (1B/1W)	Chapters 9 and 11		Weekly Exercise 6 due
Nov. 7	Chi-square	Chapter 8		Weekly Exercise 7 due
Nov. 14	Correlation	Chapter 10	Major Assignment 3 due	

[2]This is a tentative course schedule and may be modified during the semester based on class progress.
[3]Additional readings may be added throughout the semester so please be sure to check the course web site frequently.

Date	Topic	Readings[3]	Major Assignments	Weekly Exercises
Nov. 21	General Contrasts	TBD		Weekly Exercise 8 due
Nov. 28	Statistical Power	TBD		Weekly Exercise 9 due
Dec. 5	Final		Major Assignment 4 due	

Additional Information

Academic Ethics and Integrity:

You are responsible for making yourself aware of and understanding the policies and procedures in the Graduate Catalogue that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse for all materials related to this class. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Judicial Affairs. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with the course instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

Non-Discrimination Policy:

Western Michigan University prohibits discrimination or harassment which violates the law, or which constitutes inappropriate or unprofessional limitation of employment, University facility access, or participation in University activities, on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, age, protected disability, veteran status, height, weight, or marital status.

WMU Human Rights Statement:

It is a fundamental policy of Western Michigan University not to discriminate on the basis of sex, sexual orientation, color, race, age, religion, national origin, height, weight, marital status, or handicap in its educational programs, admissions, employment, promotions, salaries, and social activities. Through its example and teaching, Western strives to foster in its students, faculty, and staff respect for basic human rights. In its external relationship, the University is supportive of those activities that seek constructive change in the development of human rights in this country and abroad.

Specific Needs:

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the professor and/or Disability Services for Students, (269)387-2116, at the beginning of the semester. Disability information provided to the instructor will remain confidential. DSS recommends that students with disabilities bring their accommodation letters to the instructor during office hours or by special appointment. During the appointment, the particulars of arrangements for accommodations can be discussed and agreed upon in private.

Classroom Decorum & Etiquette:

Every member of this learning community has the right to freely express his/her opinion as long as this is done in such a way as to not impede the rights of other members of the learning community. Along this line, it is expected that all participants in this class will treat all others with respect and dignity. Behavior that is disrespectful, intimidating, threatening, or disruptive of the learning environment will not be tolerated. If any participant in the class has a concern regarding another participant's behavior he/she is encourage to speak with the instructor.

WMU Email Account is the Official Channel of Communication:

Students are expected to use their WMU email accounts regularly, as this is the official channel of communication between the University and student. Students receive notifications of class cancellations, campus emergencies and closures, and other important information through this channel. Problems sending or receiving email through the WMU address may be addressed at the Help Desk (387-HELP), online at http://www.wmich.edu/oit/helpdesk/, or in person at the front desk in any on-campus computer lab.