

ADVANCED RESEARCH METHODS

COM6315 Section 1H55

Fall 2014

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Office Hours via Skype: Thu 1:30PM – 3:30PM or by appointment

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COURSE DESCRIPTION

This course is designed to provide graduate students with an advanced understanding of the principles, methods, and techniques of quantitative research. Specifically, this course aims to help students to understand methods and analyses that are frequently used in communication research and to gain fundamental knowledge and practical skills necessary to conduct statistical analyses and interpret the results.

The course consists of two main parts. The first part of the course covers key concepts related to quantitative research methods. The purpose is to help students to understand and critically analyze the method and design of quantitative research published in academic and non-academic journals. The second part of the course covers a range of statistical analyses commonly used in communication research. The emphasis is placed on obtaining practical skills in performing statistical analyses using SPSS, reading the output, interpreting and writing up the results in a manuscript form.

COURSE OBJECTIVES

At the conclusion of the course, students should be able to:

1. Critically appraise the method and design of quantitative research in a published article.
2. Identify an appropriate quantitative method and analysis for a given research question and/or hypothesis.
3. Understand types and nature of quantitative measurement as well as means to evaluate reliability and validity of the measurement.
4. Understand characteristics, purposes, and indices of key statistical analyses.
5. Perform statistical analyses using SPSS and read the output.
6. Summarize and interpret the results of analysis in a manuscript form.

COURSE REQUIREMENT

Students must have access to SPSS.

COURSE READINGS

Required:

Mertler, C. A., & Vannatta, R. A. (2010). *Advanced and multivariate statistical methods* (5th ed.). Glendale, CA: Pycszak Publishing.

Frey, L. R., Botan, C. H., & Kreps, G. L. (2000). *Investigating communication: An introduction to research methods* (2nd ed.). Needham Heights, MA: Allyn & Bacon. [Reserved in Library West]

Pallant, J. (2011). *SPSS survival manual: A step-by-step guide to data analysis using SPSS* (4th ed.). Crows Nest, N.S.W., Australia: Allen & Unwin. [eBook available on Course Reserves on Sakai]

Additional readings will be posted on Sakai E-Learning.

Recommended Optional:

I use the following references, in addition to the above required books, to prepare my lectures. A few chapters of Blue Book series are available on the E-Learning course site. Students are encouraged to download other chapters relevant to the course topics. Hair et al.'s book covers topics of multivariate analyses comprehensively and is a useful reference for your own research as well as for this course.

Blue Book series by Statistical Associates Publishing at <http://www.statisticalassociates.com/booklist.htm>

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall. [Reserved in Library West]

COURSE CONTENT

This course consists of the following nine modules.

Module 1: Types of Quantitative Research Method

This module introduces a few main types of quantitative research method and their distinguishing characteristics. It starts with an explanation of empirical research, followed by comparisons of quantitative versus qualitative research. The module then covers specific types and characteristics of experimental research (true experiment and quasi-experiment) and non-experimental research (causal-comparative research, cross-sectional/correlational research, and longitudinal research). It also discusses different types of true and quasi-experimental designs and threats to validity.

Module 2: Conceptualization & Operationalization

This module explains the relationships between theory and hypothesis, while introducing key concepts necessary to understand the process by which hypotheses are tested. The relationships between theory and hypothesis are explained in relation to conceptualization and operationalization of a construct and distinctions between constructs and variables. As a fundamental concept underlying measurement (to be discussed in Module 3), indicators are defined and different types of indicators are introduced.

Module 3: Measurement, Reliability, & Validity

This module reviews key concepts involved in measurement including measurement levels, indicators, and dimensionality. It also discusses various tests to evaluate reliability and validity of multi-item scales.

Module 4: Basic Statistics

This module introduces basic descriptive and inferential statistics. It first distinguishes between descriptive and inferential statistics and then explains a few measures of central tendency. Following an overview of univariate and multivariate analyses and test of significance, the module covers fundamental concepts involved in Chi-square test, Pearson product-moment correlation, and t-test. Finally, it describes a step-by-step procedure of conducting these statistical analyses using SPSS, reading the SPSS output, and summarizing the results.

Module 5: ANOVA & ANCOVA

This module introduces essential concepts underlying ANOVA tests and then discusses variations of ANOVA. Specifically, it discusses different utilities of and variables used in one-way vs. two-way ANOVA, between-group vs. within-group ANOVA, and ANCOVA. It also introduces a few types of post-hoc tests. The module concludes with a step-by-step demonstration of conducting these statistical analyses using SPSS, reading the SPSS output, and summarizing the results.

Module 6: MANOVA & MANCOVA

The module starts with an overview of relevant concepts related to multivariate analysis. After the overview, it discusses characteristics and advantages of MANOVA and MANCOVA, compared to univariate analysis. The module also explains the analytical procedure and main indices of these statistics. Finally, it covers steps necessary to conduct MANOVA and MANCOVA in SPSS, read the SPSS output, and summarize the results.

Module 7: Simple & Multiple Regression

This module covers fundamental concepts underlying regression analysis, including regression equation, regression coefficients, and other indices. It also discusses the issue of multicollinearity and a means of testing interaction effects in regression analysis. Following an overview of multiple regression analysis, a few variable selection methods are introduced. The module concludes with a step-by-step demonstration of conducting a multiple regression analysis using SPSS, reading the SPSS output, and summarizing the results.

Module 8: Factor Analysis

This module begins with an introduction of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). After the introduction, the module focuses on EFA and a particular extraction technique of EFA. It also covers indices of factor analysis and rotation methods. Finally, it describes a procedure of conducting an EFA in SPSS, reading the SPSS output, and summarizing the results.

Module 9: Logistic Regression

This module discusses logistic regression analysis as a special type of multiple regression analysis. It focuses on characteristics and advantages of binary logistic analysis and main relevant indices. How to conduct a logistic regression analysis in SPSS, reading the SPSS outputs, and summarizing the results are also demonstrated.

ASSIGNMENTS

The assignments of this course are designed for students to apply the knowledge gained from the lecture in hands-on exercises. Specifically, students review published empirical research critically on its method, analysis, and results. Students also conduct statistical analyses using SPSS and write up the results in a manuscript form.

All assignments must be word-processed and follow the assignment format rules and file naming convention (see below). Pay close attention to the page limit of each assignment. A penalty is applied for each line that exceeds the page limit. Assignments are due to Sakai E-Learning. Refer to the Course Schedule for deadlines.

Assignment 1: Types of Quantitative Research Method

Review the assigned articles and answer the questions for each article. Download the Word file from the Assignments tool, complete the assignment, and save the file according to the file naming convention (e.g., Module 1_Assignment 1_John Smith.docx). Submit the assignment to the Assignments tool. The assignment may be single-spaced, but must not exceed 7 pages. You may use a cover page for this assignment.

Assignment 2: Article Critique

For the assigned article, identify the following and provide necessary explanations as indicated below. Submit the assignment in Word. The assignment may be single-spaced, but must not exceed 2 pages.

- 1) Theory: What theory or theories are used?
- 2) Hypothesis: What is (are) the hypothesis (hypotheses)? How is the theory translated to the hypothesis?
- 3) Conceptualization: What are the key constructs used in the study? How are they conceptualized (conceptual definition)? The key constructs are those explicated in the theory.
- 4) Operationalization: How are the key constructs operationalized (operational definition)? How are they manipulated or measured?
- 5) Reflective indicator(s): What variables, if any, are reflective indicators? Explain why they are reflective indicators.
- 6) Formative indicator: What variables, if any, are formative indicators? Explain why they are formative indicators.

Assignments 3, 5, 7, 9, 11, and 13: Analysis of Method & Statistical Technique

For these assignments, students analyze a specific statistical analysis (or analyses) in an assigned article(s) and provide the information requested (see below). The assignment may be single-spaced. Submit the Word file to the Assignments tool.

You have an option of choosing an article(s) in your field of study, which employed the statistical analysis (analyses) relevant to the assignment. The article must contain all of necessary information to complete the assignment. Submit the article (via email) **at least two weeks before the assignment deadline** for my review and approval. Articles submitted within two weeks of the assignment deadline will not be reviewed and cannot be used for the assignment.

Assignment 3: Chi-square Test and t-test

For the assigned articles, provide full bibliographic information of the article (the APA style is preferred) and identify (a) the test performed (Chi-square test or t-test), (b) variables analyzed, (c) measurement level of each

variable and a short description of variable measurement (e.g., how it was measured), and (d) relationships of variables examined with the test. The assignment must not exceed 3 pages.

Assignment 5: ANOVA & ANCOVA

Choose one of the assigned articles. Provide full bibliographic information of the article and identify (a) the test performed (two-way ANOVA, repeated measures ANOVA, or ANCOVA), (b) independent variable(s), dependent variable(s), and covariate(s), if ANCOVA was conducted (c) measurement level of each variable and a short description of variable measurement, and (d) relationships or effects of variables examined with the test. The assignment must not exceed 2 pages.

Assignment 7: MANOVA & MANCOVA

Choose one of the assigned articles. Provide full bibliographic information of the article and identify (a) the test performed (one-way or two-way MANOVA or MANCOVA), (b) independent variable(s), dependent variable(s), and covariate(s), if MANCOVA was conducted (c) measurement level of each variable and a short description of variable measurement, and (d) relationships or effects of variables examined with the test. The assignment must not exceed 2 pages.

Assignment 9: Multiple Regression

Choose one of the assigned articles. Provide full bibliographic information of the article and identify (a) the test performed (standard multiple regression, stepwise regression, or hierarchical regression), (b) independent variable(s), dependent variable(s), and any covariate(s) (b) measurement level of each variable and a short description of variable measurement, and (c) relationships or effects of variables examined with the test. The assignment must not exceed 2 pages.

Assignment 11: Factor Analysis

For the assigned article, provide full bibliographic information of the article and identify (a) the purpose of the analysis (e.g., What factors or dimensions did the researcher try to uncover?), (b) variables analyzed, (c) measurement level of each variable and a short description of variable measurement, and (4) factor structure that resulted from the analysis (e.g., What factors were revealed from the analysis? What variables belonged to each factor? How were the factors labeled? Eigenvalues and, if reported, the percent of the total variance explained by each factor). The assignment must not exceed 2 pages.

Assignment 13: Logistic Regression

For the assigned article, provide full bibliographic information of the article and identify (a) independent variable(s), dependent variable(s), and any covariate(s), (b) measurement level of each variable and a short description of variable measurement, and (c) relationships or effects of variables examined with the test. The assignment must not exceed 2 pages.

Assignments 4, 6, 8, 10, 12, and 14: Data Analysis & Interpretation

These assignments are designed to help students to gain hands-on experience on statistical analyses using SPSS. Students need to conduct a particular analysis (analyses) using SPSS, generate SPSS output, construct a results table(s) in Word, and summarize the results in a manuscript form. You should construct your own results tables (preferably following the APA style) and not copy-paste SPSS output. The data set is available on the module page of Sakai E-Learning. You may choose any variables in the data set and examine their relationships as long as you choose the correct type (i.e., measurement level) of variables for the given analysis. Based on SPSS output, (1) state a research question/hypothesis and/or a relationship of variables you examine for the given analysis, (2) construct a results table(s), and (3) summarize and interpret the results in a manuscript form in Word. Submit the SPSS output and Word file containing the above information to the Assignments tool. The Word document should be double-spaced. The page limit of each assignment is indicated below. You may use additional page(s) for results tables.

Assignment 4: Chi-Square Test, Pearson Product-Moment Correlation, and t-test

Conduct these three analyses and report the results as specified above (page limit: 3).

Assignment 6: Two-Way ANOVA, One-Way Repeated Measures ANOVA, and One-Way or Two-Way ANCOVA

Conduct a two-way ANOVA, one-way repeated measures ANOVA, and one-way or two-way ANCOVA and report the results as specified above (page limit: 5)

Assignment 8: One-Way or Two-Way MANOVA or MANCOVA

Conduct a MANOVA (one-way or two-way) or a MANCOVA (one-way or two-way) and report the results as specified above (page limit: 2).

Assignment 10: Multiple Regression

Conduct a standard multiple regression, stepwise regression, or hierarchical regression and report the results as specified above. There should be a minimum of five independent variables (page limit: 2).

Assignment 12: Factor Analysis

Conduct an EFA and report the results as specified above. There should be a minimum of five variables and your final factor structure must contain two or more factors. Name the factors in the final factor structure appropriately (page limit: 2).

Assignment 14: Logistic Regression

Conduct a logistic regression and report the results as specified above. There should be a minimum of five independent variables and they need to be a mix of continuous variables and categorical variables (page limit: 2)

Assignment Format

Word documents (.doc or docx) must be formatted to have a 1” margin on all four sides. Use 12-point Times New Roman font (a larger font can be used for titles and headings) and insert page numbers at bottom center. Use one font style only including page numbers (i.e., Times New Roman). The document must be left justified and prepared according to the APA style.

At the top of the first page, indicate 1) module number and title (e.g., Module 1. Types of Quantitative Research Method), 2) assignment title (e.g., Assignment 1: Types of Quantitative Research Method), 3) course title and semester (e.g., Advanced Research Methods, Fall 2014), 4) date of submission, and 5) student name. Do not use a cover page unless otherwise instructed.

The purpose of results tables is to help the reader to understand the results of the analysis easily. Keep that in mind when constructing results tables. For instance, do not split a table over two pages. If a table is too large to place in the remainder of the page, use a page break and place it in the next page so that the entire table can fit in a page.

File Naming Convention

For articles in pdf: last name of the first author_year of publication_initials of the journal/publication_key words of the article title (e.g., Kim_2013_JA_Corporate Credibility and Spokesperson Credibility.pdf)

For Word documents and SPSS outputs: module number_assignment number_student name (e.g., Module 1_Assignment 1_Hyojin Kim.docx)

QUIZZES

A total of five quizzes are given in the course and can be found in the Assessments tool on Sakai. Quizzes are based on lecture videos and required readings. Do not solely rely on lecture videos to study for a quiz, although lecture videos can be used as a guide to understand important topics to focus on. Quizzes are timed and graded immediately following completion.

FINAL EXAM

The final exam will be given in Week 15 and due by Dec 10th noon. Students will be given one week to complete the exam. Questions ask students to review and critically analyze the method, data analysis, and results of assigned journal articles; and read SPSS outputs, interpret, and write up the results. Students must submit a Word file containing their answers. The Word document must conform to the assignment format rules and file naming convention (e.g., Final Exam_Hyojin Kim.docx).

GRADING CRITERIA & SCALE

Grading Criteria

60%	Assignments
10%	Quizzes
30%	Final Exam

Grading Scale

A	= 90 or above	C	= 70-75
B+	= 86-89	D+	= 66-69
B	= 80-85	D	= 60-65
C+	= 76-79	E	= below 60

COURSE FORMAT & POLICY

This is a Web-based course and thus gives you flexibility of when and where you “attend” the class. However, it is **EXTREMELY IMPORTANT** that you set aside a “class time” each week to study course materials and complete assignments. Students will not be excused for turning in the assignment late unless the reason is approved by the Dean of Graduate Studies & Research, your thesis/dissertation chair, or department chair/program director. Having an assignment deadline around the same time for another class is not an excusable reason for turning in an assignment late in this class, for example. Do not wait until the day before the assignment is due to contact me with questions. Keep up with readings and lecture videos and start assignments early.

No extra credit projects are available. All assignments and quizzes are due on the specified dates (refer to the Course Schedule). Twenty percent of the assignment’s grade will be deducted each day the assignment is turned in late. All assignments must be prepared and presented professionally and proof-read thoroughly. Students must take special care to use proper words and spelling, grammatically correct sentences, and logically flowing content. A penalty is applied for each misspelled word, grammatically incorrect sentences and other writing errors after three errors.

PLAGIARISM & ACADEMIC DISHONESTY

Academic honesty is expected on all assignments and quizzes. Cheating of any kind (including plagiarism) will not be tolerated. Plagiarism is particularly a serious issue in graduate classes. It is YOUR responsibility to make certain you understand what constitutes plagiarism and to ensure that you give proper credit anytime you draw on someone else’s writing. If you’re not certain you understand what is acceptable and what is not, check out these Web sites or consult me. Your assignments will be checked for plagiarism with Turninit program:

<http://www.indiana.edu/~wts/wts/plagiarism.html>

<http://www.sja.ucdavis.edu/sja/plagiarism.html>

The students of the University of Florida recognize that academic honesty and integrity are fundamental values of the University community. Students who enroll at the University commit to holding themselves and their peers to the high standard of honor required by the Honor Code. Any individual who becomes aware of a violation of the Honor Code is bound by honor to take corrective action. A student-run Honor Court and faculty support are crucial to the success of the Honor Code. The quality of a University of Florida education is dependent upon the community acceptance and enforcement of the Honor Code.

Students are strongly advised to view UF’s academic honesty guidelines at:

<http://www.dso.ufl.edu/judicial/procedures/honestybrochure.php>

COURSE SCHEDULE

The following is a tentative course schedule. Additional lecture videos and readings may be added. The quizzes are accessible in the Assessments tool on the course site of Sakai E-Learning. Assignments must be submitted to the Assignments tool on Sakai.

Week 1 & 2		
Module 1: Types of Quantitative Research Method		
Aug 25 – Aug 29 Sep 2 – Sep 5	Required Reading	Frey, Botan, & Kreps: Ch. 7
	Optional Reading	Research Methods Knowledge Base: http://www.socialresearchmethods.net/kb/design.php
	Lecture Video	Welcome (Course Materials homepage)
		1.1: Overview of Quantitative Research
		1.2: True Experiment
		1.3: Threats to Validity
		1.4: Quasi Experiment
		1.5: Non-Experimental Research
Quiz	Take Quiz 1 (covers the syllabus and Welcome video) in Assessments by Aug 29th noon Take Quiz 2 (Module 1) in Assessments by Sep 5th noon	
Assignment	Answer the questions on Discussion board to introduce yourself to the class by Aug 29th noon Submit Assignment 1 to Assignments by Sep 5th noon	
Week 3		
Module 2: Conceptualization & Operationalization		
Sep 8 – Sep 12	Required Reading	Kerlinger: Ch. 3 (Available on Sakai E-Learning)
		Pedhazur & Schmelkin: pp. 54-59 (Available on Sakai E-Learning)
	Lecture Video	2.1: Theory, Hypothesis, & Research Questions
		2.2: Constructs & Variables
		2.3: Indicators
	Quiz	Take Quiz 3 (Module 2) in Assessments by Sep 12th noon
Assignment	Submit Assignment 2 to Assignments by Sep 12th noon	
Week 4		
Module 3: Measurement, Reliability, & Validity		
Sep 15 – Sep 19	Required Reading	Frey, Botan, & Kreps: Ch. 4 (pp. 81-95), 5 (pp. 109-119)
	Optional Reading	Blue Book: Measurement Levels, Reliability, Validity
	Lecture Video	3.1: Overview of Measurement
		3.2: Levels of Measurement
		3.3: Other Important Topics of Measurement
		3.4: Reliability
	3.5 Validity	
Quiz	Take Quiz 4 (Module 3) in Assessments by Sep 19th noon	

Week 5 & 6		Module 4: Basic Statistics
Sep 22 – Sep 26 Sep 29 – Oct 3	Required Reading	Frey, Botan, & Kreps: Ch. 11 (pp. 289-301, 305-307), 12
		Mertler & Vannatta: Ch. 1, 2
		Pallant: Ch. 6, 8-12
	Optional Reading	Blue Book: Correlation, Crosstabulation, Testing Statistical Assumptions
	Lecture Video	4.1: Descriptive Statistics
		4.2: Dispersion
		4.3: Test of Significance
4.4: Basic Inferential Statistics		
4.5a-c: Data Analysis and Interpretation using SPSS		
Quiz	Take Quiz 5 (Module 4) in Assessments by Sep 26th noon	
Assignment	Submit Assignments 3 and 4 to Assignments by Oct 3rd noon	
Week 7 & 8		Module 5: ANOVA & ANCOVA
Oct 6 – Oct 10 Oct 13 – Oct 16	Required Reading	Mertler & Vannatta: Ch. 4-5
		Pallant: Ch. 18-20, 22
	Optional Reading	Blue Book: GLM Univariate, ANOVA, and ANCOVA
	Lecture Video	5.1: <i>F</i> -test, One-Way ANOVA, & Post-Hoc Test
		5.2: Two-Way ANOVA & Repeated Measures ANOVA
		5.3: ANCOVA
Assignment	Submit Assignments 5 and 6 to Assignments by Oct 16th noon	
Week 9		Module 6: MANOVA & MANCOVA
Oct 20 – Oct 24	Required Reading	Mertler & Vannatta: Ch. 6
		Pallant: Ch. 21
	Optional Reading	Blue Book: GLM Multivariate, MANOVA, and MANCOVA
	Lecture Video	6.1: Multivariate Analysis
		6.2: MANOVA & MANCOVA
Assignment	Submit Assignments 7 and 8 to Assignments by Oct 24th noon	
Week 10		Module 7: Regression
Oct 27 – Oct 31	Required Reading	Mertler & Vannatta: Ch. 7
		Pallant: Ch. 13
	Optional Reading	Blue Book: Multiple Regression
	Lecture Video	7.1: Overview of Regression Analysis
		7.2: Multiple Regression
		7.3: Other Important Topics of Multiple Regression
Assignment	Submit Assignments 9 and 10 to Assignments by Oct 31st noon	

Week 11	Module 8: Factor Analysis	
Nov 3 – Nov 7	Required Reading	Mertler & Vannatta: Ch. 9 Pallant: Ch. 15
	Optional Reading	Blue Book: Factor Analysis
	Lecture Video	8.1: Factor Analysis 8.2: Data Analysis and Interpretation using SPSS
	Assignment	Submit Assignments 11 and 12 to Assignments by Nov 7th noon
Week 12	Module 9: Logistic Regression	
Nov 10 Nov 12 – Nov 14	Required Reading	Mertler & Vannatta: Ch. 11 Pallant: Ch. 14
	Optional Reading	Blue Book: Logistic Regression
	Lecture Video	9.1: Logistic Regression 9.2: Data Analysis and Interpretation using SPSS
	Assignment	Submit Assignments 13 and 14 to Assignments by Nov 14th noon
Week 13 & 14	Module 10: TBA	
Nov 17 – Nov 21 Nov 24 – Nov 25	The module topic, reading, and assignments will be announced later. Assignments given for this module will be due to Assignments by Nov 25th noon	
Week 15 & 16	Wrap-up & Final Exam	
Dec 1 – Dec 5 Dec 8 – Dec 10	Submit the Final Exam to Assignments by Dec 10th noon	