RES730 Statistical Modeling
(3 credit hours)
Course Syllabus

Course Description

Students will learn how to apply appropriate statistical models to address research questions of interest in a methodologically sound way. They will examine parametric and non-parametric statistical methods. This course will interpret data findings while examining the challenges of reliability and validity in cross-cultural research.

Course Learning Outcomes

By the end of this course, you will be able to:

1. Explain key concepts in probability, population and sampling, estimation, confidence intervals and hypothesis testing.
2. Demonstrate use of the appropriate descriptive statistics and graphing skills to determine and communicate particular data distributions.
3. Design statistical protocols that correctly test the assumptions behind the use of particular statistical techniques.
4. Produce statistical results using statistical modeling.
5. Select and conduct the appropriate statistical technique for different analyses (parametric vs. non-parametric; relationships among variables vs. differences among groups or conditions; exploratory vs. explanatory/causal research).

Required Textbook(s) and Resources

Pallant, J. (2020). *SPSS Survival Manual* (7th ed.). Open University Press.

In addition to the textbook, you will need to install the following software. Software you install on your computer is not included with DragonACCESS.

IBM SPSS Statistics Premium GradPack 26.

Note that SPSS has been chosen as the standard statistics software used throughout the PhD program. You will need to purchase and install SPSS if you do not already own it. This software is normally very expensive ($8,050 retail), but student rental prices are much less. Rental periods of 6, 12 or 24 months are available.

Be sure to also review the weekly **Explore** sections for additional library or web resources. For access to databases, research help, and writing tips, visit the Tiffin University Library.

Time Commitment

Effective time management is possibly the single most critical element to your academic success. To do well in this online class you should plan your time wisely to maximize your learning through the completion of readings, discussions, and assignments. Because of our accelerated, seven-week term, TU online courses are designed with the expectation that you dedicate a little over **six (6)** hours per credit hour to course activities and preparation **each week**. For example, for successful completion of a three-credit, seven-week online course you should reserve roughly **twenty (20) hours per week**.

To help plan your time and keep on track toward successful course completion, note the distinctive rhythm of assignment due dates:

1. All times assume Eastern Time (GMT-4).
2. Weeks begin at 12:00 a.m. ET on Monday and end at 11:55 p.m. ET on Sunday.
3. Unless otherwise noted, initial assignments or discussion posts are due by **11:55 p.m. ET** on **Wednesdays.**
4. Additional assignments or follow-up discussion posts are due by **11:55 p.m. ET** on **Saturdays, and**
5. Major assignments and reflections are typically due by **11:55 p.m. ET** on **Sundays.**

Learning Activities

Grading for this course consists of six weekly forums; a quiz in Week 1; a 25-point project in Week 1 to install SPSS; seven SPSS projects, in which you conduct either a descriptive or inferential statistical analysis then report on your results; and a project in Week 7 to install and conduct data analysis with Smart PLS-SEM.

Grading

The chart below identifies the individual contributions from each type of activity, per week.

Activity	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Total
Discussion	--	25	25	25	25	25	25	**150**
Quiz	75	--	--	--	--	--	--	**75**
SPSS Projects	25	100	100	100	100	100	100	**625**
Short Paper	--	--	100	--	--	--	--	**100**
Smart PLS-SEM Project	--	--	--	--	--	--	50	**50**
Total	**100**	**125**	**225**	**125**	**125**	**125**	**175**	**1000**

Grading Scale

A: 90-100% | B: 80-89% | C: 70-79% | F: <69%

Course Schedule and Weekly Checklist

Topic	**Learning Activities** (Due by 11:55 p.m. ET on day designated)
Week 1: Important Statistical Terms and Concepts	☐ WED: Activity 1.1 - Meet Your Peers (Forum) ☐ SUN: Activity 1.2: Activity 1.2: Setting Up SPSS ☐ SUN: Activity 1.3: Exam on Key Statistical Terms & Concepts
Week 2: Descriptive Statistics	☐ WED: Activity 2.1 (Forum): Descriptive Statistics in Your Own Research ☐ SAT: Activity 2.1 Forum Responses ☐ SUN: Activity 2.2: Descriptive Statistics Calculation and Graphing
Week 3: Parametrics involving Relationships among Variables	☐ WED: Activity 3.1 (Forum): Multiple Linear Regression for Business Research ☐ SAT: Activity 3.1 Forum Responses

Topic	**Learning Activities** (Due by 11:55 p.m. ET on day designated)
	☐ SUN: Activity 3.2: Determining the Right Inferential Statistical Family ☐ SUN: Activity 3.3: Conducting Multiple Linear Regression
Week 4: Parametrics involving Differences among Groups	☐ WED: Activity 4.1 (Forum): Business Research and ANOVA ☐ SAT: Activity 4.1 Forum Responses ☐ SUN: Activity 4.2: Conducting ANOVA
Week 5: Nonparametrics involving Relationships among Variables	☐ WED: Activity 5.1 (Forum): Business Research and Nonparametric Inferential Statistics ☐ SAT: Activity 5.1 Forum Responses ☐ SUN: Activity 5.2: Conducting Spearman Rank Correlation Coefficient and Chi-square Tests
Week 6: Nonparametrics involving Differences among Groups	☐ WED: Activity 6.1 (Forum): Business Research and the Kruskal Wallis Test ☐ SAT: Activity 6.1 Forum Responses ☐ SUN: Activity 6.2: Activity 6.2: Conducting the Kruskal Wallis Test
Week 7: Structural Equation Modeling	☐ WED: Activity 7.1 (Forum): Business Research and Structural Equation Modeling ☐ SAT: Activity 7.1 Forum Responses ☐ SUN: Activity 7.2: Installing and Using Smart PLS-SEM ☐ SUN: Activity 7.3: Advantages and Disadvantages of PLS-SEM

Tips for Success

Successful online learning requires a good deal of self-discipline and self-direction. As seekers of the truth, we should be willing to challenge and review one another's academic work in a spirit of respectful comradery and constructiveness. You should accept constructive feedback as a gift. Your course is a place for you to stretch and grow as you benefit from the expertise, knowledge, experience and diverse perspectives of your instructor and peers. Constructive feedback will challenge you to stretch your own thinking, thereby expanding your knowledge, understanding and application.

To get the most out of your learning experience, you should actively engage (participate) in **ALL** course activities. Course elements in any given week are arranged chronologically. To complete a week, simply work your way "down the page" through all of the course materials and activities.

For More Information:

Be sure to review the Support, Policies, and Procedures addendum.