



# Educational Research and Statistics

CEST 6300 ~ NOLA2U

New Orleans Baptist Theological Seminary

Christian Education Division

Mondays, 6:00-8:50 pm ~ Fall 2020

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*The mission of New Orleans Baptist Theological Seminary is to equip leaders to fulfill the Great Commission and the Great Commandments through the local church and its ministries.*

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### **Purpose of the Course**

The purpose of this course is to provoke student mastery of basic tools in research design and statistical analysis -- the advanced languages of Christian education. These tools include both a required vocabulary to help students become better consumers of academic research, and the requisite skills for designing an original study, collecting valid data, and analyzing collected data in order to answer real world questions that confront contemporary educational ministries. Essentially, CEST 6300 is a language course, laying the linguistic and conceptual foundation for analyzing empirical research in doctoral seminars, and eventually writing a research prospectus, conducting original research, and writing a formal dissertation.

### **Core Value Focus**

*Doctrinal Integrity* – Knowing that the Bible is the Word of God, we believe it, teach it, proclaim it, and submit to it. The doctrinal statements used in our evaluations are our Articles of Religious Belief and the Baptist Faith and Message Statement.

*Spiritual Vitality* – We are a worshiping community, with both personal spirituality and gathering together as a Seminary for the praise and adoration of God and instruction in His Word.

*Mission Focus* – We are not here merely to get an education or to give one. We are here to change the world by fulfilling the Great Commission and the Great Commandments through the local church and its ministries.

*Characteristic Excellence* – What we do, we do to the utmost of our abilities and resources as a testimony to the glory of our Lord and Savior Jesus Christ.

*Servant Leadership* – We follow the model of Jesus and exert leadership and influence through the nurture and encouragement of those around us.

Annually, the President designates a core value that will become the focus of pedagogy for the year. For **2020-2021** academic year that Core Value is ***Mission Focus***.

## **Curriculum Competencies Addressed**

New Orleans Baptist Theological Seminary curriculum is guided by seven basic competencies: biblical exposition, Christian theological heritage, disciple making, interpersonal skills, servant leadership, spiritual and character formation, and worship leadership.

This course will emphasize the following curriculum competencies:

1. *Disciple Making*: To stimulate church health through mobilizing the church for missions, evangelism, discipleship, and church growth.
2. *Servant leadership*. To serve churches effectively through team ministry.
3. *Spiritual and Character Formation*: To provide moral leadership by modeling and mentoring Christian character and devotion.

## **Course Description**

The course explores (1) the nature of science as a way of knowing, (2) the scientific method as a means of collecting credible empirical data regarding questions raised by educational ministries, and (3) statistical procedures as the means of analyzing collected data. The biblical basis for honest measures and analyses is found in passages such as “The Lord abhors dishonest scales, but accurate weights are his delight” (Pr 11:1, NIV. See also Lv 19:36; Dt 25:15; Pr 16:11, 20:23; Mi 6:11). Christian ministers can use quantitative methods to improve educational and administrative programs in the local church, taking “captive every thought to make it obedient to Christ” (2 Co 10:5-6, NIV). Through this course, students will construct an educational foundation for doctoral level research and analysis.

## **Student Learning Objectives**

In order to serve local churches and denominational agencies effectively through Christian Education research, the students will demonstrate . . .

1. . . . understanding of the principles of research design, the structure of a formal research proposal, the various types of research, their corresponding approaches to data gathering, and the appropriate statistical procedure for each type by submitting clear and correct assignments and examinations.
2. . . . appreciation for credible data collection and sound statistical analysis by their willingness to give themselves to assignments, discussions, and exam preparation.
3. . . . skill in solving statistical problems by using statistical procedures in an appropriate and competent manner.

## **Required Text**

Salkind, Neil J. and Bruce B. Frey. *Statistics for People Who (Think They) Hate Statistics*. Seventh Ed. Los Angeles: Sage Publications, 2019. ISBN: 9781544381855

Salkind, Neil J. and Bruce B. Frey. *Study Guide for Education to Accompany Salkind and Frey's Statistics for People Who (Think They) Hate Statistics*. Seventh Ed. Los Angeles: Sage Publications, 2019. ISBN: 9781544395975

A free and open companion website for this textbook is available to help you study. This site, at [edge.sagepub.com/salkindfrey7e](http://edge.sagepub.com/salkindfrey7e), includes the data sets for the exercises in the book, as well as practice quizzes, flashcards, and videos.

IBM SPSS Statistics GradPack 26. This software may be downloaded as either a 6 month license or 12 month license at this url:

[https://estore.onthefhub.com/WebStore/OfferingsOfMajorVersionList.aspx?pmv=304b1df-f-5b5d-e911-8115-000d3af41938&cmi\\_mnuMain=8659da1b-241d-e611-941a-b8ca3a5db7a1](https://estore.onthefhub.com/WebStore/OfferingsOfMajorVersionList.aspx?pmv=304b1df-f-5b5d-e911-8115-000d3af41938&cmi_mnuMain=8659da1b-241d-e611-941a-b8ca3a5db7a1)

A calculator and access to Excel is required.

## Course Teaching Methodology

### **Units of Study**

The topics of study (corresponding to chapters in text) that will be covered in the course are as follows:

#### Unit 1: Introduction to Quantitative Research

1. Science and Faith
2. Introduction to SPSS
3. Math Review

#### Unit 2: Descriptive Statistics

4. Measurement Types: Nominal, Ordinal, Interval, Ratio
5. Variability
6. Graphs
7. Correlation Coefficients
8. Reliability and Validity

#### Unit 3: Statistical Testing and Probability

9. Hypothesis and Research Questions
10. Probability
11. The Normal Curve

#### Unit 4: Inferential Statistics

12. One-sample Tests of Difference (z-, t-)
13. Two-Sample Tests of Difference (independent t, matched t)
14. One-Way Analysis of Variance (F);
15. Correlation (Pearson r, Spearman rho, Kendall tau)
16. Linear Regression
23. Chi-Square (Goodness of Fit, Test of Independence)

## **Teaching Method**

This course will emphasize a format of teaching and learning that leads to skill-based mastery of vocabulary, concepts, and procedures. This includes weekly reading assignments, writing assignments, lecture, demonstrations, problem-solving assignments, and conceptual examinations.

## **Delivery Format**

*The course will be delivered via streaming internet on eight specified Mondays, 6:00-8:50 pm (Aug 31, Sep 14, Sep 28, Oct 12, Oct 26, Nov 9, Nov 30, and Dec 7) and on-line through Blackboard. Since this is designed as a full semester course, no pre-course assignments will be made. See the course overview for weekly units.*

## **Course Policies**

The following policies will serve to govern both the student and professor for the duration of this course.

### **Assignment Submission**

Assignments will be made available to student access on Monday morning. Homework is due Saturday night before midnight. Initial Discussion board posts are due by midnight Thursday, each student is expected to make substantive comments on at least two of his/her peer's posts by midnight Sunday. **Assignments not posted on time will be docked 50%.**

### **Assignment Format**

All assignments are to be submitted in Word or WordPerfect formats. They are to be typed, double-spaced with 12-point font (Times New Roman preferred) and 1-inch margins unless otherwise indicated. You may "cut and paste" the final draft of each assignment into the appropriate Discussion Board under your personally created thread. Since not every student has both Word and WordPerfect word processors, you may not attach the document to the discussion post.

### **Netiquette**

Appropriate Online Behavior. Each student is expected to demonstrate appropriate Christian behavior when working online on Discussion Boards or whenever interaction occurs through web, digital, or other electronic medium. The student is expected to interact with other students in a fashion that will promote learning and respect for the opinions of others in the course. A spirit of Christian charity is expected at all times in the online environment.

### **Academic Honesty Policy**

All graduate and undergraduate NOBTS students, whether on-campus, internet, or extension center students, are expected to adhere to the highest Christian standard of honesty and integrity when completing academic assignments for all courses in every delivery system format. The Bible provides our standard for academic integrity and honesty. This standard applies whether a student is taking tests, quizzes, exams, writing papers, completing Discussion Boards, or any other course requirement.

## **NOBTS Grading Scale Percentages**

A 93-100%      B 85-92%      C 77-84%      D 70-76%      F 0-69%

### **Course Grade Computation**

The professor will prescribe a grade based upon the student's satisfactory completion of the following:

<i>Homework Assignments</i>	<i>40%</i>	<i>Due each Saturday by midnight</i>
<i>Discussion Forum Responses</i>	<i>15%</i>	<i>Due each Sunday by midnight</i>
<i>Midterm Exam</i>	<i>20%</i>	<i>Due October 24 by midnight</i>
<i>Final Exam</i>	<i>25%</i>	<i>Due December 14 by midnight</i>

**Course Schedule**  
(Fall 2020)

WEEK	TOPICS	ASSIGNMENTS
<b>Introduction</b>		
1	<p style="color: red;">Aug 31 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <p style="text-align: center;"><b>Introduction to Research Design and Statistical Analysis</b></p> <p style="text-align: center;"><b>Overview of SPSS</b></p>	<p>Read <b>chapters 1-2</b>, <i>Statistics for People Who (Think They) Hate Statistics (Textbook)</i></p> <p>Read <b>chapters 1-2</b>, <i>Study Guide for Education to Accompany Salkind and Frey's Statistics for People Who (Think They) Hate Statistics (Study Guide)</i></p> <p>Download and Install SPSS Grad Pack</p> <p>Complete Homework Assignments on BB.</p>
<b>RESEARCH DESIGN: Fundamentals</b>		
2	<p style="color: red;">Sept 7 BB only</p> <p style="text-align: center;"><b>Variability and Graphs</b></p>	<p>View Posted Videos</p> <p>Read <b>chapters 3-4 (Textbook and Study Guide)</b></p> <p>Complete Homework Assignments on BB.</p>
3	<p style="color: red;">Sept 14 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <p style="text-align: center;"><b>Correlation Coefficients</b></p>	<p>View Posted Videos</p> <p>Read <b>chapter 5 (Textbook and Study Guide)</b></p> <p>Complete Homework Assignments on BB.</p>
4	<p style="color: red;">Sept 21 BB only</p> <p style="text-align: center;"><b>Reliability and Validity</b></p>	<p>View Posted Videos</p> <p>Read <b>chapter 6 (Textbook and Study Guide)</b></p> <p>Complete Homework Assignments on BB.</p>
<b>RESEARCH DESIGN: Methods</b>		
5	<p style="color: red;">Sept 28 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <p style="text-align: center;"><b>Hypothesis Testing</b></p>	<p>View Posted Videos</p> <p>Read <b>chapter 7 (Textbook and Study Guide)</b></p> <p>Complete Homework Assignments on BB.</p>
6	<p style="color: red;">Oct 5 BB only</p> <p style="text-align: center;"><b>Probability and Normal Curves</b></p>	<p>View Posted Videos</p> <p>Read <b>chapter 8 (Textbook and Study Guide)</b></p> <p>Complete Homework Assignments on BB.</p>
7	<p style="color: red;">Oct 12 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <p style="text-align: center;"><b>Introduction to Inferential Statistics</b></p> <p style="text-align: center;"><b>The Search for Significance</b></p> <p style="text-align: center;">Review Chapters 1-8 for midterm</p>	<p>View Posted Videos</p> <p>Read <b>chapter 9 (Textbook and Study Guide) and Review</b></p> <p>Complete Homework Assignments on BB.</p> <p>Post Midterm Exam (<b>Due Oct 24</b>)</p>

## Fall Break Oct 19 - 23

### STATISTICAL ANALYSIS: Fundamentals

8	<p style="color: red;">Oct 26 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <b>Normal Distribution Testing</b> <b>z-Score Testing</b>	View Posted Videos Read <b>chapter 10 (Textbook and Study Guide)</b> Complete Homework Assignments on BB.
9	<p style="color: red;">Nov 2 BB only</p> <b>t-Tests: Tests between Means of Different Groups</b>	View Posted Videos Read <b>chapter 11-12 (Textbook and Study Guide)</b> Complete Homework Assignments on BB.
10	<p style="color: red;">Nov 9 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <b>ANOVA</b>	View Posted Videos Read <b>chapter 13 (Textbook and Study Guide)</b> Complete Homework Assignments on BB.

### STATISTICAL ANALYSIS: Procedures

11	<p style="color: red;">Nov 16 BB only</p> <b>Factorial ANOVA</b>	View Posted Videos Read <b>chapter 14 (Textbook and Study Guide)</b> Complete Homework Assignments on BB.
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## Thanksgiving Break Oct 23 - 27

12	<p style="color: red;">Nov 30 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <b>Pearson Correlations and Linear Regression</b>	View Posted Videos Read <b>chapter 15-16 (Textbook and Study Guide)</b> Complete Homework Assignments on BB.
13	<p style="color: red;">Dec 7 ~ BlueJeans Session Mon 6:00-8:50 pm</p> <b>Chi-Square Tests</b> <b>Nonparametric Tests</b>	View Posted Videos Read <b>chapter 17 (Textbook and Study Guide)</b> Complete Homework Assignments on BB.
14	<p style="color: red;">Dec 14</p>	Comprehensive Final Exam Due

\*The professor reserves the right to make changes to the schedule as needed.

## Selected Bibliography

Creswell, John W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4<sup>th</sup> ed. Los Angeles: Sage Publications, Inc. 2014.

Houser, Rick A. *Counseling and Educational Research: Evaluation and Application*, 3<sup>rd</sup> ed. Los Angeles: Sage Publications, Inc. 2015.

Johnson, R. Burke and Larry Christensen. *Educational Research: Quantitative, Qualitative, and Mixed Approaches*, 5<sup>th</sup> ed. Thousand Oaks, California: SAGE Publications, Inc. 2014.

Pelham, Brett W. *Intermediate Statistics: A Conceptual Course*. Thousand Oaks, California: SAGE Publications, Inc. 2013.