



# **Educational Research and Statistics**

## **CEST 6300 ~ NOLA2U Internet Course**

New Orleans Baptist Theological Seminary  
Discipleship and Ministry Leadership Division  
Fall 2018

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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 worshipping 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 2018-2019 academic year that Core Value is *Doctrinal Integrity*.**

## 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.

This course is delivered by Internet (BlueJeans) and meets Mondays, 6:00 – 8:50.

## Student Learning Outcomes

In order to serve local churches and denominational agencies effectively through Christian Education research, the students involved in the course 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

Yount, William. *Research Design and Statistical Analysis for Christian Ministry*, 5<sup>th</sup> ed. Fort Worth: Self-published, 2015. (Free download from Blackboard: “*Textbook*”)

## 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: Research Fundamentals

1. Science and Faith
2. The Research Proposal
3. Measurement Types: Nominal, Ordinal, Interval, Ratio
4. Problem and Hypothesis
5. Introduction to Statistical Analysis: A Meta-Flowchart
6. Synthesis of Related Literature
7. Sampling and Populations
8. Measurement Triad: Objectivity, Validity, Reliability

#### Unit 2: Research Methods

9. Observation Research
10. Survey Research: Interviews and Questionnaires
11. Testing
12. Attitude Scales
13. Experimental Designs

#### Unit 3: Statistical Fundamentals

14. Math Review
15. Graphing Data
16. Focus and Scatter: Central Tendency and Variation
17. The Normal Curve
18. Error Rates and Statistical Power

#### Unit 4: Statistical Procedures

19. One-sample Tests of Difference (z-, t-)
20. Two-Sample Tests of Difference (independent t, matched t)
21. One-Way Analysis of Variance (F); Multiple Comparisons (LSD, FLSD, HSD)
22. Correlation (Pearson r, Spearman rho, Kendall tau)
23. Chi-Square (Goodness of Fit, Test of Independence)

#### Unit 5: Introduction to Advanced Procedures

24. Ordinal Differences (Wilcoxin T, Mann-Whitney U, Kruskal-Wallis H)
25. n-Way ANOVA, ANCOVA, MANOVA (extra credit)
26. Linear and Multiple Regression (extra credit)

### 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 Internet \(BlueJeans\)](#) 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.

## **Class Meeting Times**

On-Campus students meet in HSC 279 on Monday evenings, 6:00 – 8:50 pm. Internet students sign onto BlueJeans on Mondays by **6:45 pm** to insure technical connections are up. You will have access to the week's emphases all day Monday before we meet at 8:00 pm, should you want to prepare ahead of time.

## ***Intellectus Statistics***

We will use an internet-based software program Intellectus Statistics for the Chapter 5 Introduction to Statistics and Chapters 14-26 Statistical Fundamentals and Procedures. You will be receiving an email from Jeanine Glase during the first week of the course. This email will contain a link allowing you to purchase a license and access the program. Cost for the license is \$35 for the semester. For more details, see the *Intellectus Statistics* section on page 10.

## **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 for student access on Monday morning. Written work is due Friday night before midnight. Evaluations of two student submissions are due before Sunday midnight. Assignments on posted on time will be docked 50%.

### **Assignment Format**

All assignments are to be submitted in Word, WordPerfect, or Rich Text 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 either “cut and paste” the final draft of each assignment into the appropriate Discussion Board under your personally created thread, or attach the document. Since not every student has both Word and WordPerfect word processors, attach whole documents as PDFs or Rich Text files.

Include a Turabian format cover page that includes name, date of submission and assignment title. A Turabian style guide is available in the NOBTS library and located on the NOBTS web site at <http://www.nobts.edu/resources/pdf/Extensions.Old/turabiantutor7thjan08.pdf>.

### **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%

## Grading Scale by Points, based on 900 points

A 837-900    B 765-836    C 693-764    D 630-692    F 0-629

## Course Grade Computation

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

<i>Written Assignments (20x14)</i>	<i>280</i>	<i>Due each Friday by midnight</i>
<i>Written Responses (10x14)</i>	<i>140</i>	<i>Due each Sunday by midnight</i>
<i>Unit Exams (20x14)</i>	<i>280</i>	<i>Due each Sunday by midnight</i>
<i>Intellectus Statistics Assignments (10x10)</i>	<i>100</i>	<i>Due as scheduled</i>
<i>Final Comprehensive Exam</i>	<i><u>100</u></i>	<i>Due Sunday, December 10</i>
	<i>1000</i>	


**Written Assignments** ~ Each week you will write answers to assigned questions based on the lecture and reading for the week. These are posted under the appropriate "Unit" in Discussion Boards. (A Unit = a Week's material). The professor will grade your answers and award 0-20 points.

**Written Responses** ~ Each week you will select two student assignments in the class to respond to. "Response" means academic engagement: extend comments, ask questions, critique explanations "with gentleness." The professor will grade your responses and award 0-10 points. *Subjective responses such as a "high five" or a shallow "Great Job!" does not count. Other examples of improper responses include "I just loved your story about . . ." or "I completely agree with your definition!"* Extend comments by adding to their explanations. Ask conceptual questions about posts. Gently critique the quality and correctness of the selected posts. In other words, demonstrate the depth of your own understanding by engaging the posts of two other students.

**Unit Exams** ~ Each week you will take a short Blackboard Quiz over the material. You have two quiz forms, A and B. You may take A alone. If you do poorly on Exam A, you may take Exam B and Blackboard will average the two.

**Intellectus Statistics Assignments** ~ You will be given ten problems to solve using Intellectus Statistics. Each is worth 10 points. These are separate from "Written Assignments" which are more conceptual and verbal.

## Blackboard Navigation

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**(Educational Research and Statistics)**

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**Course Essentials**  
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**Weekly Schedule**

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[Unit 1 - Introduction and Proposal](#)

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**Research Fundamentals**  
[Unit 2 - Measurement and Problem/Hypothesis](#)

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[Unit 14 - Ordinal Tests of Difference](#)

The **Course Schedule** in the following section provides a concise overview of the course and matches these Blackboard elements.

Sign into Blackboard TM-CEST6300RY and find a purple column on the left of the screen.

Major headings include

**Course Title,**

**Home Page,** which contains **Announcements,**

**A personal message and family picture** from me,


**Course Essentials,** and

**Weekly Schedule.**

The course is divided into 14 weekly units (with an extra credit 15<sup>th</sup>). Blackboard uses the term “Unit” rather than “Week” since the course can be offered in other than “weekly” formats.

The links under “**Weekly Schedule**” correspond to the numbered weeks in the Syllabus “**Course Schedule.**” Click on any Unit link to see the assignments for that unit/week.

Use these links to plan ahead since the weekly Discussion Boards only become available on their specific week.

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**Course Essentials**  
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**Weekly Schedule**

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[Unit 1 - Introduction and Proposal](#)

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**Research Fundamentals**  
[Unit 2 - Measurement and Problem/Hypothesis](#)

The folder **“About the Professor”** provides information regarding the life and work of Dr. Rick Yount.

The folder **“Syllabus”** contains this semester’s **Course Syllabus** (that is, this PDF document).

The folder **“Textbook”** (PDF files) is located under **“Textbook.”** Reading assignments in the Syllabus Schedule refer to this text.

The folder **“Course Documents”** contain introductory videos (normally used in the on-line Blackboard course) and Course PowerPoints as needed.

The folder **“Discussion Boards”** contain the weekly pages where you will upload your written assignments, *Intellectus* assignments, and responses. You will create a new thread each week (SUBJECT <lastname>) and respond to classmates’ posts.

Boards become available each Monday morning for the 14 weeks of the course.

“Assigned Questions X” in the Schedule below refers to Questions displayed under the BB “Weekly Schedule” link and the “Discussion Board” assignments for Week (Unit) “X.”

The folder **“Weekly Assignment Schedule”** contains the (redundant) **Course Schedule** contained in this syllabus (next).

The folder “**Examinations**” contains the weekly “**Unit Exams**” (Exam 1, 2, 3 . . . ), made available on Fridays of each week.

**Course Schedule**  
(Fall 2018)

WEEK	TOPICS	ASSIGNMENTS
<b>Introduction</b>		
1	<b>Introduction to Research Design and Statistical Analysis</b>  <b>The Research Proposal</b>	View Introductory Video 1 Read <b>chapters 1-2</b> , <i>Research and Statistics for Christian Ministry</i> Read “The Bible and Research” Answer Assigned Questions 1 and Post Exam 1
<b>RESEARCH DESIGN: Fundamentals</b>		
2	<b>Empirical Measurement: Data Types Problems and Hypotheses</b>	View Introductory Video 2 Read <b>chapters 3-4</b> Answer “Assigned Questions 2” and Post Exam 2
3	<b>The Statistical Flowchart Synthesis of Related Literature</b>	View Introductory Video 3 Read <b>chapters 5-6</b> Answer “Assigned Questions 3” and Post Exam 3
4	<b>Populations and Sampling The Measurement Triad</b>	View Introductory Video 4 Read <b>chapters 7-8</b> Answer “Assigned Questions 4” and Post Exam 4
<b>RESEARCH DESIGN: Methods</b>		
5	<b>Observation Survey Methods</b>	View Introductory Video 5 Read <b>chapters 9-10</b> Answer “Assigned Questions 5” and Post Exam 5
6	<b>Creating Test Items and Tests Creating Attitude Scales</b>	View Introductory Video 6 Read <b>chapters 11-12</b> Answer “Assigned Questions 6” and Post Exam 6



7	<b>Experimental Designs: Cause and Effect</b> Research Design Review	View Introductory Video 7 Read <b>chapter 13 and Review</b> Answer "Assigned Questions 7" and Post Midterm Exam 7
<b>STATISTICAL ANALYSIS: Fundamentals</b>		
8	<b>Introduction to Mathematical Terms</b> Graphing Data	View Introductory Video 8 Read chapters 14-15 Answer "Assigned Questions 8" and Post Exam 8
9	<b>Central Tendency and Variation</b> <b>The Normal Curve Defined</b>	View Introductory Video 9 Read <b>chapters 16-17</b> Answer "Assigned Questions 9" and Post Exam 9
10	<b>The Normal Curve and Error Rates</b> Statistical Fundamentals Review	View Introductory Video 10 Read <b>chapter 18 and Review</b> Answer "Assigned Questions 10" and Post Exam 10
<b>STATISTICAL ANALYSIS: Procedures</b>		
11	<b>One-Sample z- and t-Tests</b> <b>Independent and Matched t-Tests</b>	View Introductory Video 11 Read <b>chapters 19-20</b> Answer "Assigned Questions 11" and Post Exam 11
12	<b>One-Way Analysis of Variance (ANOVA)</b> Multiple Comparison Procedures	View Introductory Video 12 Read <b>chapter 21</b> Answer "Assigned Questions 12" and Post Exam 12
13	<b>Correlation</b> <b>Chi-Square Tests</b>	View Introductory Video 13 Read <b>chapters 22-23</b> Answer "Assigned Questions 13" and Post Exam 13
14	<b>Ordinal Tests of Difference (small n)</b>	View Introductory Video 14 Read <b>chapter 24 and Review</b> Answer "Assigned Questions 14" and post Final Exam Comprehensive Exam 14
15	<b>Factorial ANOVA, ANCOVA, MANOVA</b> <b>Linear and Multiple Regression</b> <i>(extra credit)</i>	View Introductory Video 15 Read <b>chapters 25-26</b> Answer "Assigned Questions 15" and post Final Exam 15

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

## **Final Note: *Intellectus Statistics***

This course will make use of an on-line statistical package called *Intellectus Statistics* to introduce you to statistical procedures and statistical analysis. While limited in scope compared to SPSS, *IS is a new generation of statistical software that walks you through the procedural steps of analysis and even writes out an interpretation of findings in APA format.* It is like having a statistical companion.

While you will still need to master statistical concepts and procedures, *IS* eliminates many of the trial-and-fail experiences students often suffer under SPSS. You will have ten assignments using *IS* software. You will need to buy a license, which costs at this writing \$35 for the entire semester. Thereafter, you can rent *IS* a month at a time for \$60. You can choose to do your data gathering and organization in *Excel* and upload the Excel file into *IS*, or, you can enter data directly into *IS*. Then you can manipulate data, create graphs, and run one or more analyses on this data. More than one test can be done at a time. A month is more than enough time to do even the most complex of analyses.

*IS* will format a Word document that contains a report of the findings, graphs and charts summarizing findings, and narratives explaining the outcomes for each procedure run. You will only need to adjust the formatting to NOBTS style.

We will walk you through the steps as we move through the course. Since I am giving you the textbook, and saving you hours of tedious learning the syntax of SPSS commands (which could be a course in itself!), I believe you will find the \$35 investment worth every penny.

You can investigate *Intellectus Statistics* at <http://www.intellectusstatistics.com/>

### **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

*While these texts could prove helpful, the understanding of the many key concepts, symbols, terms, and procedures found in the course text are most important. The text is designed as an educational text, developed over 32 years of teaching graduate level courses. It will help you become fluent in research design and statistical analysis. RY*

### Fall 2018 Course Dates

Week	Date	Emphasis
1	August 20	Unit 1
2	August 27	Unit 2
3	September 3	Unit 3 (Labor Day; <i>No Class Meeting</i> )
4	September 10	Unit 4
5	September 17	Unit 5
6	September 24	Unit 6
7	October 1	Unit 7
8	October 8	Unit 8
9	October 15	<i>Fall Break: No Classes: No Assignments</i>
10	October 22	Unit 9
11	October 29	Unit 10
12	November 5	Unit 11
13	November 12	Unit 12
14	November 19	<i>Thanksgiving Break: No Classes: No Assignments</i>
15	November 26	Unit 13
16	December 4	Unit 14 (and Unit 15 Extra Credit)