



## DIVISION OF EDUCATION

**University Mission:** Wayland Baptist University exists to educate students in an academically challenging and distinctively Christian environment for professional success, lifelong learning and service to God and humankind.

### **Course Number and Title: CTED 4333 Statistics for the Behavioral Sciences**

Professor: Lori Franklin

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**Course Description:** This course examines descriptive and inferential statistical concepts and techniques commonly used in research, including the organization of data, graphical representation, measures of central tendency and variability, normal distribution curve, sampling theory, and test of significant differences between related and independent samples.

### **Resources:**

Gravetter, Frederick J. & Wallnau, Larry B. (2007) *Statistics for the Behavioral Sciences (7<sup>th</sup> Edition)*. Wadsworth.

Textbook Companion Website – <http://www.thomsonedu.com/psychology/gravetter/>

Other reading as directed through the course.

Note: Any student who, because of a disabling condition, may require some special arrangement in order to meet course requirements should contact the instructor as soon as possible to make necessary accommodations.

### Course Outline:

WEEK	TOPIC	ASSIGNMENT
<b>Lesson 1</b>	Course Introduction Chapter 1 – Introduction to Statistics Selecting a research topic	Intro Wiki Chapter 1 Homework Set, Online Quizzes
<b>Lesson 2</b>	Chapter 2 – Organization of Data Graphical Representation Performing a Literary Review	Discussion Board Chapter 2 HW Set Observation Blog Evaluating Sources
<b>Lesson 3</b>	Chapter 3 – Measures of Central Tendency Chapter 4 – Variability	Chapter 3 Homework Set Chapter 4 Homework Set Research Topic Chosen
<b>ONLINE EXAM 1</b>		
<b>Lesson 4:</b>	Copyright Law APA Style	Discussion Board Works Cited Draft
<b>Group Project</b>		
<b>Lesson 5</b>	Chapter 5 – Normal Distribution Chapter 6 – Probability	Chapter 5 Homework Set Chapter 6 Homework Set Lit Review Rough Draft
<b>Lesson 6</b>	Chapter 7 – Sampling Theory Educational Research Report Format	Chapter 7 Homework Set Report Format Activity
<b>ONLINE EXAM 2</b>		
<b>Lesson 7</b>	Research Design	Discussion Board Research Hypothesis Experiment Proposal
<b>Lesson 8</b>	Chapter 8 – Introduction to Hypothesis Testing	Chapter 8 Homework Set
<b>Lesson 9</b>	Chapter 9 – Introduction to the <i>t</i> Statistic	Chapter 9 Homework Set Experiment Blog Entry
<b>Lesson 10</b>	Chapter 10 – The <i>t</i> Test for Two Independent Samples Chapter 11 – The <i>t</i> Test for Two Related Samples	Chapter 10 Homework Set Chapter 11 Homework Set
<b>ONLINE EXAM 3</b>		
<b>Lesson 11</b>	Making Sense of Test Results	Data & Analysis
<b>Individual Research Project Due on Final Day</b>		

### Grading Scheme:

Discussion Board (4 Forums)	10%
Group Project	15%
Homework	20%
Exams (3)	25%
Individual Research Project	30%

- A grade of CR indicates that credit in semester hours was granted but no grade or grade points were recorded.

	90-100
<b>A</b>	80-89
<b>B</b>	70-79
<b>C</b>	60-69
<b>D</b>	below 60
<b>F</b>	

<b>Cr</b>	For Credit*
<b>NCR</b>	No Credit
<b>I</b>	Incomplete**
<b>W</b>	Withdrawal
<b>X</b>	No grade given
<b>IP</b>	In Progress

\*\*A grade of incomplete is changed if the deficiency is made up by the end of the next regular semester; otherwise, it becomes F. This grade is given only if circumstances beyond the student's control prevented completion of work during the semester enrolled and attendance requirements have been met.

**Outcome Competencies:** The student will become familiar with research methods and will use statistical means to evaluate the data.

**Student Learning Outcomes (SLO):**

- 1. Students will** be familiar with terminology and special notation of statistical analysis.
- 2. Students will** learn how statistical techniques fit into the general process of science.
- 3. Students will** understand the concept of a frequency distribution as an organized display showing where all of the individual scores are located on the scale of measurement.
- 4. Students will** be able to organize data graphically.
- 5. Students will** understand the purpose of measuring central tendency and be able to define and compute each of the three measures of central tendency.
- 6. Students will** understand the purpose of measuring variability and be able to define the range, interquartile range, and standard deviation.
- 7. Students will** demonstrate the ability to standardize a distribution by transforming X values into z-scores, and will be able to describe the effects of doing so.
- 8. Students will** understand the basic definition of probability, random sampling, a normal distribution, and binomial probabilities.
- 9. Students will** define the distribution of sample means and, for a specific sampling situation, describe the distribution by identifying its shape, the expected value of M, and the standard error of M.
- 10. Students will** understand the logic of hypothesis testing and be able to conduct a test using a z-score statistics and make a statistical decision.
- 11. Students will** understand when a *t* statistic is used for hypothesis testing and perform such a hypothesis test.
- 12. Students will** understand the structure of a research study that produces data appropriate for an independent-measures *t* hypothesis test and one that produces data appropriate for a repeated-measures *t* hypothesis test.
- 13. Students will** be familiar with research methodology and demonstrate the ability to design and carryout a research study.

**Participation Policy:** Students are expected to submit class assignments with punctuality and to participate actively on the discussion board. Students are encouraged to communicate promptly with the professor in case of an unavoidable delay in order to keep pace with the requirements of the course. You are training to be a professional. If you wouldn't use the excuse for your boss/principal, don't use it as excuse for this class. You will never be better as a teacher than you are a student.

**Late Work:** This course consists of many assignments. In order to avoid falling behind, it is necessary to get assignments in on time. Late work will not be accepted. Exceptions may be made in extreme circumstances **only** if notice is given prior to the assignment due date.

**Academic Honesty:** Wayland "expects students to be honest in all of their academic work. By enrolling, students agree to adhere to the high standards of academic honesty and integrity and

understand that failure to comply with this pledge may result in academic and disciplinary action.”

Source: <http://www.spjc.cc.fl.us/webcentral/admit/honesty.htm#plag>

**Plagiarism:** “Plagiarism — The attempt to represent the work of another, as it may relate to written or oral works, computer-based work, mode of creative expression (i.e. music, media or the visual arts), as the product of one's own thought, whether the other's work is published or unpublished, or simply the work of a fellow student.

When a student submits oral or written work for credit that includes the words, ideas, or data of others, *the source of that information must be acknowledged through complete, accurate, and specific references*, and, if verbatim statements are included, through use of quotation marks as well. By placing one’s name on work submitted for credit, the student certifies the originality of all work not otherwise identified by appropriate acknowledgements. *A student will avoid being charged with plagiarism if there is an acknowledgement of indebtedness.* Examples include:

1. Quoting another person's actual words.
2. Using another person's idea, opinion, or theory, even if it is completely paraphrased in one's own words.
3. Drawing upon facts, statistics, or other illustrative materials — unless the information is common knowledge.
4. Submitting a paper purchased from a term paper service as one's own work.
5. Failing to accurately document information or wording obtained on the World Wide Web.
6. Submitting anyone else's paper as one's own work.
7. Violating federal copyright laws, including unauthorized duplication and/or distribution of copyrighted material.
8. Offering, giving, receiving or soliciting of any materials, items or services of value to gain academic advantages for yourself or another.”

Source: <http://www.spjc.cc.fl.us/webcentral/admit/honesty.htm#plag>

**Discussion Board:** Students are expected to participate in the Discussion Board. These will be graded based on organization of comments, quality of comments, contribution beyond the original question, time-management, and attitude in submissions. Students who meet the deadlines with positive, organized, and useful discussion-provoking comments using appropriate language will receive full credit.