

## WAYLAND BAPTIST UNIVERSITY

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**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.

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**COURSE NUMBER AND TITLE:**

**EDUC 5302VC01**

**Research Methods and Data Analysis**

**TERM AND DATES:**

Summer 2008

May 27, 2008 through August 9, 2008

Classroom: WBU Virtual Campus

**INSTRUCTOR INFORMATION:**

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**CATALOG COURSE DESCRIPTION:**

Development of research skills and the interpretation of research results.

**RESOURCE MATERIALS:**

Required Text:

Slavin, Robert. (2007). *Education research in an age of accountability*. Boston, MA: Pearson Education, Inc.

Recommended:

- A supplemental aid for using Excel, such as *Excel for dummies*, *Microsoft Office Excel step by step*, or any similar Excel guide for beginners.
- A supplemental aid for understanding statistical analysis, such as Donnelly, Robert A, Jr. (2007). *The complete idiot's guide to statistics*. New York, NY: Alpha Books, Penguin Group.

Additional Resources:

- Data documents from Texas Education Agency or other state's education agency websites
- Data documents from Dept. of Education and NCES websites
- Research navigator, located on the MyLabSchool website ([www.mylabschool.com](http://www.mylabschool.com))
- WBU online library

- Selected Websites

**Units of Study:**

- I. Educational Research
- II. Research Design
- III. Descriptive Statistics
- IV. Survey Research
- V. Hypothesis Testing
- VI. Inferential Statistics
- VII. Improving Teaching and Learning

**COURSE OUTLINE**

<b>Weeks</b>	<b>Lesson Units</b>	<b>Text Chapters</b>
<b><u>Week Starts:</u></b>		
1	<b>I. Educational Research</b> <ul style="list-style-type: none"> <li>• Data-driven decision making</li> <li>• Describing data and inferring meaning</li> <li>• Overview of research designs</li> <li>• Data – types and sources</li> <li>• Action research</li> </ul>	1, 9 May 27
2	<b>II. Research Design</b> <ul style="list-style-type: none"> <li>• Experimental and quasi-experimental designs</li> <li>• Measurement</li> <li>• Validity threats</li> <li>• Qualitative research</li> </ul>	2- 5, 10, 8-9 June 3
3, 4	<b>III. Descriptive Statistics</b> <ul style="list-style-type: none"> <li>• Frequency distributions</li> <li>• Student data, demographics, and enrollment</li> <li>• Measures of central tendency</li> <li>• The bell curve</li> </ul>	13 June 10 June 17
5	<b>IV. Survey Research</b> <ul style="list-style-type: none"> <li>• School and community</li> <li>• Survey design</li> </ul>	6 June 24
6	<b>V. Hypothesis Testing</b> <ul style="list-style-type: none"> <li>• Probability</li> <li>• Z scores and Z tests</li> <li>• Sampling</li> <li>• Confidence intervals</li> </ul>	13 July 1
7-9	<b>VI. Inferential Statistics</b>	13-14 July 8

- Statistical Procedures July 15
  - T tests July 22
  - Chi Square tests
  - Correlations
- 10, 11 VII. **Improving Teaching and Learning** 12, 15 July 29  
**Aug 5**
- Communicating research findings
  - Ethics in research
  - School improvement

**COURSE REQUIREMENTS:**

**A. Data Sets – Ongoing – 20 points**

You will receive data sets and scenarios throughout the course that you will analyze and interpret. Your learning teams may work together on these data sets. The learning teams provide you with the opportunity to assist team members, and be assisted by team members, as you work through the concepts embedded in the data sets. You may, however, choose to work individually if you prefer.

**B. Written Assignments – 55 points**

**1. Qualitative Research Design (Slavin text, Chapters 7-8) - 10 points – Due June 3**

Select an article on a **qualitative study** of your choice from a professional journal. Conduct a literature search for an education research study that includes one of the following qualitative designs: case study, ethnography, phenomenology, historical research, feminist theory, critical theory, postmodernism, or content analysis.

After reading the article, critique the study. Describe the type of research design, what is being studied, who is being studied, what type of data is collected, how the data is analyzed, and what conclusions are drawn. Are the interpretations drawn from the study valid and free from researcher bias? Prepare a 750-1250 word response in APA format. Recommended professional journals, available through the WBU Library Resources and MyLabSchool, include:

- a. *Journal of Educational Psychology*
- b. *Journal of Counseling Psychology*
- c. *Issues in Higher Education*
- d. *Education and Society*
- e. *Education Digest*

f. *Educational Psychologist.*

**2. Action Research Problems and Design (Slavin text, Chapters 1-4)  
– 10 Points – Due June 10**

- Identify two problems in your district or campus that you could realistically research.
- Give background into each problem – why is each an issue a concern for the district or campus?
- Describe the type of educational research methods that would be most appropriate in implementing this research for each problem. Explain your reasoning.
- Conduct a brief literature search on each problem, identifying research articles that have direct bearing on them. Include 4-7 sources for each.
- Write your research questions. Specific instructions for crafting clearly defined research questions will be discussed in class. Develop a research and null hypothesis, and identify the two populations you will be comparing in your study.
- Identify the types of data that you would collect in implementing each research study, the time frame for the project, and how the data would be analyzed and reported.

**3. Student Data Presentation – Descriptive Stats (Slavin Text, Chapter 13) – 10 points – Due June 24**

**Note: This assignment is designed for Texas educators. For those of you out of state/country, an alternate assignment will be developed.**

- Conduct a thorough analysis of at least 2 years of AEIS data for your district or campus. Prepare a PowerPoint presentation that would be suitable for your school board that will describe the strengths and challenges presented by this data. Each data set should be appropriately and attractively depicted in tables and in graphs or charts.
- At a minimum, your data presentation should include:
  - Demographics, included socioeconomic status and ethnicity
  - TAKS data for all students and subpopulations of students.
  - TAKS trends over at least a 2 year period
  - Special Education data from alternative assessments
  - SAT/ACT data (if includes High School)
  - Graduation rates and drop out rates (if includes High School)
  - Student to teacher ratios in each grade (if includes Elementary)
  - Summary of strengths and challenges

**4. Survey Research: School and Community (Slavin Text, Chapters 6) – 10 points - Due July 8**

- Prepare a 10-question (minimum) survey through the zoomerang website, [www.zoomerang.com](http://www.zoomerang.com), that gauges community perception about a specific school-related issue. (Note: this is a free site. You have to register and there is an option to purchase advanced features but utilize only the free sections of the survey tool. There is a 10-day limit on data storage on the site).
- Send this survey to all classmates in this class, as well as a copy to my email address: [lleach@roosevelt.k12.tx.us](mailto:lleach@roosevelt.k12.tx.us)
- You may also choose to send the survey to school-based colleagues for a broader range of input.
- Prepare a summary paper about the process. Include in the paper an analysis of the following:
  - Pros and cons of the survey website as a data collection tool
  - Quality of the questions your survey included
  - The response rate and this may have been improved, if applicable
  - The information gleaned from the responses about the issue.

**5. Action Research Report and Presentation – (Slavin text, Chapter 11) - 15 points – Due July 29**

You will prepare a research paper and a presentation of your selected Action Research project that would be suitable to present to interested stakeholders.

- The paper should include all components that a journal article or a conference paper would require. See Chapter 15 for these components.
- The presentation should contain approximately 10-15 PowerPoint slides. Include the following in your presentation, at a minimum:
  - The purpose of your research
  - Literature review – summary of main points
  - The research design
    - ✓ question, hypotheses, and populations
    - ✓ research type and rationale
    - ✓ the data collection procedure used
    - ✓ methods used to analyze data
    - ✓ analysis of measurement reliability and validity
    - ✓ validity threats
  - The data collected (mock data)

- Statistical analysis of the data that includes both descriptive and inferential analysis
- The results indicated by the data and the statistical analysis
- Conclusions drawn from these results
- Implications for action

**B. Blackboard Discussion Board Participation - Ongoing – 10 points**

Each week there will be required Blackboard discussion threads and activities. You are required to post a minimum of 8 times per week on the Blackboard discussion board, including your response to the week's DQ thread and additional substantive contributions to classmates' postings. You are expected to post on at least 3 days each week. Each Tuesday will be considered the first day of each week and the last day of the week will be Monday.

**C. Final Exam - 15 points – Due August 9, noon**

The final exam will include elements of research design discussed throughout the course. You will be expected to demonstrate mastery of the course outcome competencies listed below. It will be an at-home exam, and you will be able to use all notes, readings, assignments, etc. to complete it.

**COURSE OUTCOME COMPETENCIES:** Upon completion of the course, the student will have demonstrated the ability to:

- 1) Describe the role of data and data-driven decision making within the larger school context of school improvement.
- 2) Describe the types of data and data management systems available in different school settings.
- 3) Identify various rationales for conducting quantitative or qualitative research in educational settings.
- 4) Examine the role of the research question, hypotheses, and research design components in quantitative research.
- 5) Compare and contrast methods of collecting different types of data in quantitative research.
- 6) Describe educational research methods and data collection tools used by educational research methods.
- 7) Examine the uses of descriptive statistics and apply common statistical analyses.
- 8) Identify appropriate uses for measures of central tendency.
- 9) Analyze the elements of effective graphs and charts for data presentation.
- 10) Examine the uses of inferential statistics and apply common statistical analyses.
- 11) Examine the purposes of tests of statistical significance in educational research.
- 12) Design, conduct, and analyze a survey instrument used for collecting information about a critical issue in a school system.

- 13) Analyze student data using statistics and graphical representations.
- 14) Design, conduct, and publicly present an Action Research project addressing a critical issue in a school system.
- 15) Define ethics, ethical issues in research, and the need for ethical behavior in conducting educational research.

## **MEANS FOR ASSESSING STUDENT ACHIEVEMENT OF THE OUTCOME COMPETENCIES:**

- Blackboard Participation
- Data Set Analyses
- Written Assignments:
  - Action Research Design
  - Qualitative Research Design
  - Student Data Presentation
  - Survey Research Project
  - Action Research Project and Presentation
- Final Exam

## **ATTENDANCE POLICY:**

1. External Campus Attendance Policy
  - a. Students enrolled at the Virtual Campuses of Wayland Baptist should make effort to check into class regularly. Participation is required 3 days per week, at a minimum. Eight substantive classroom postings on the discussion board are considered a weekly minimum.
  - b. All prolonged absences must be explained to the satisfaction of the instructor who will decide whether the omitted work may be made up.
  - c. Due dates are strictly enforced. If a serious situation arises, it will be at the instructor's discretion whether an extension will be allowed.
  - d. When a student reaches a level of absence from classroom participation considered by the instructor to be excessive, the instructor will so advise the student and file an Unsatisfactory Progress Report in the office of the instructor's division chairperson.
  - e. Additional attendance policies for each course, as defined by the instructor in the course syllabus, are part of Wayland's attendance policy
2. Instructor's Additional Policies:
  - a. If you must miss be absent from the virtual classroom for more than 5 days at a time, please make every effort to contact me prior to the class meeting by email or by leaving a message at my office: 842-3282 x 113
  - b. Participation will count **10%** of your grade.

**EVALUATION:**

**Grading Criteria:**

A. University Grading System

A	90-100	Cr	Credit
B	80-89	NCR	No Credit
C	70-79	I	Incomplete
D	60-69	IP	In Progress
F	Below 69	X	No grade given
		WP	Withdrawal Passing
		WF	Withdrawal Failing

A grade of “CR” indicates that credit in semester hours was granted but no grade or grade points were recorded. A grade of incomplete is changed if the work required is completed prior to the date indicated in the official University calendar of the next long term, unless the instructor designates an earlier date for completion. If the work is not completed by the appropriate date, the I is converted to the grade of F. An incomplete notation cannot remain on the student’s permanent record and must be replaced by the qualitative grade (A-F) by the date specified in the official University calendar of the next regular term. Check the catalog, pg. 73.

B. Procedures Used for Computation of Final Grade:

Data Sets	20%
Written Assignments One – Five	55%
Blackboard Participation	10%
Final Exam	15%

**ACADEMIC HONESTY:**

University students are expected to conduct themselves according to the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, forgery, or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work).

Disciplinary action for academic misconduct is the responsibility of the faculty member assigned to the course. The faculty member is charged with assessing the gravity of any case of academic dishonesty, and with giving sanctions to any student involved. Penalties may be applied to individual cases of academic dishonesty. See catalog for more information.

**DISABLED PERSONS:**

It is university policy that no otherwise qualified disabled person be excluded from participation in, be denied the benefits of, or be subject to discrimination under any education program or activity in the University.