Vanguard University
School for Professional Studies
Degree Program

"INTRODUCTION TO STATISTICS WITH EMPHASIS IN HEALTH SCIENCES"

NURS 330

Student Guide

07/11

COURSE DESCRIPTION

This course provides nursing students conceptual background of statistical techniques and statistical experience with an emphasis on application relevant to identifying outcomes. The course includes selecting, applying, and interpreting univariate and bivariate statistical methods. The applied statistical focus is on performing statistical procedures to answer research questions using existing health science databases. The course provides a framework for understanding and applying commonly used data analysis techniques in health care research using graphing calculators and/or Microsoft Excel.

COURSE OVERVIEW

The course will cover descriptive as well as inferential statistics and methods of analysis. The student will be exposed to the theoretical background behind the use of statistics as well as beginning to more advanced statistical methods. The student will understand and utilize various statistical formulas to determine whether or not there are statistical differences within and between sets of data and be able to calculate statistics using graphing calculators. The key to this statistics course is to educate the student on what type of statistics can and should be used to answer the research question at hand. It will also help the student to understand and critique research methods and statistics used in their future studies, when critiquing other research, and when investigating and implementing research into their workplace settings.

AACN ESSENTIALS OF BACCALAUREATE EDUCATION

1. INFORMATION AND HEALTH TECHNOLOGIES: WILL DEVELOP METHODS OF DISCOVERING, RETRIEVING, AND USING INFORMATION IN NURSING PRACTICE.

MATERIALS NEEDED FOR CLASS

- **Required text:** Triola, Mario F. *Essentials of Statistics*, 4th edition (2011, Pearson Education Inc.). Boston: Addison-Wesley. ISBN 0321-688-058

- **A Laptop Computer:** You will be required to complete all assignments in Excel. There is an Excel add-in included with your textbook. This add-in will enable you to complete the necessary statistical tests and calculations.

LEARNING OUTCOMES

Upon satisfactory completion of this course, the student will be able to:

1. Understand and give examples of different types of data arising in public health services.

2. Interpret and analyze statistical information presented in print or other media which is encountered in nursing, healthcare, healthcare research, as well as in daily life.

3. Apply techniques and methods of collecting, organizing, summarizing, displaying and interpreting data.

4. Apply techniques to estimate and predict the value of a variable and determine the probability of events.

5. Apply techniques to analyze various hypotheses and draw valid conclusions.

6. Apply techniques to describe and analyze the relationship between quantities using correlation and regression.

7. Present data in an organized and professional manner.

8. Use a computer to effectively implement the above objectives.

COURSE POLICIES

ATTENDANCE

Attendance at each class is expected, and students are to come to class promptly and remain present until class is dismissed. Class attendance is necessary in order to complete the course. The School for Professional Studies relies on the dynamics of class interaction and group processing in order to integrate and apply the learning of academic content. In practical terms, one course session is equivalent to three weeks of traditional semester course work.

If you have a true emergency, please advise the instructor ***before*** the absence or as soon as you know about the emergency. Be sure to obtain the notes from a classmate.

According to SPS policy:

> *Students who miss two class meetings (or more than five class hours) in any given course will automatically receive a failing grade and need to retake the course to obtain a passing grade. If an instructor deems that a student's second absence was under extremely unavoidable and unusual circumstances (i.e., an auto accident), the professor may file an academic petition on behalf of the student to the Director of SPS. If the academic petition is approved, the instructor may give the student a "W" (withdrawal) grade in place of a failing grade. The student will still be required to retake the course. Students who arrive late disturb the class. Therefore, students who arrive late will not receive participation points for the information covered. Students who are habitually late may be asked to drop the course.*

GETTING INVOLVED

The key to success in this course is student initiative—a willingness and desire to put forth effort and contribute. Math is not a "spectator sport," and you need to get fully involved in each lesson! Class activities will require student engagement, and will be part of the grading procedures.

ACADEMIC DISHONESTY

Work submitted for assessment purposes must be the independent work of the student concerned. Plagiarism, or copying and use of another's work without proper acknowledgment, is not permitted. Nor is it permissible for any former or present student to allow another student to refer to, use as a sample, or in any way copy or review their work. If a student needs guidance, he or she must seek the Professor's assistance. Work on homework problems in groups is permitted. Copying answers from the text or computer program is not permitted. Students must show sufficient work to provide evidence that calculation of the problems has occurred. Academic dishonesty will result in a zero for that assignment, and the University policy on cheating will be followed.

DISABILITY SERVICES

For students with documented medical or psychological disabilities, please contact the Coordinator of Disability Services to request reasonable accommodations. The Coordinator of Disability Services is located in the Counseling Center on the second floor of the Scott Academic Center and can be reached at extension 4489 or by email at disabilityservices@vanguard.edu

For students with a documented learning disability who would like to request appropriate accommodations, please contact the Director of Learning Skills, located upstairs in Scott Academic Center at extension 2540 or by email at disabilityservices@vanguard.edu

CLASSROOM DIVERSITY STATEMENT

As students and faculty at Vanguard University of Southern California, and foremost as Christian believers, we endeavor to communicate with honesty and confidentiality, to speak with encouraging and edifying words, and to create a safe environment where we shelter one another with love when vulnerabilities arise. This classroom intends to foster a Christ-centered community that promotes appreciation and respect for individuals, enhances the potential of its members, and values differences in gender, ethnicity, race, abilities, and generation.

GRADING

ATTENDANCE and PARTICIPATION

1. Students will receive 12 points for each week's attendance and participation. Students must be in class for the duration of the entire lesson and its activities in order to receive the credit for work that day. Students are required to have their laptop computers in class each day.
2. Attendance points cannot be made up if a student is absent. Quizzes can be taken ahead of time if a student knows they will be absent. Arrangements must be made with the professor. There are no late quizzes.

HOMEWORK

1. Homework is done in groups of 3 that are formed in the first class. All homework assignments are to be completed in Excel. They are to be emailed to the instructor by 5pm one week from the day they are assigned.
2. Each homework assignment is worth 16 points.

CLASS ACTIVITIES

1. Each week students will complete 1 or 2 class activities designed to implement the concepts covered in the lesson. Students will collaborate to complete these activities using their notes and laptops. These assignments will affect class participation points.

QUIZZES

1. There will be one short quiz at the end of each chapter. Each quiz is 10 questions in length. Only a blank spreadsheet in Excel can be used to help students complete the quizzes. The quizzes are closed-book.
2. Each quiz will be worth 40 points. The lowest quiz score will be dropped. ***All work must be shown in a manner consistent with the examples done in class, and answers must be clearly identified***.

FINAL PROJECT

The Final is in project form. Each homework group will work together to complete a comprehensive data analysis. The project will be done throughout the semester, keeping pace with the course.

- Make a hypothesis about something related to nursing where 3 or more groups can be compared (12 points).
- Obtain data by surveying other nurses you know, friends or family, or students at Vanguard. There needs to be a minimum of n=30 in each group. Turn in a copy of your survey (40 points).
- Put your data into frequency tables by category (12 points).
- Graph your data in overlaying polygons (28 points).
- Find N, n, mean, median and mode for your data (12 points).
- Calculate standard deviation and variance for each category of data (16 points).
- Create a 90% confidence interval for each category of data (40 points).
- Complete an ANOVA. Properly show the hypothesis, raw data and ANOVA summary table. (72 points)
- Complete a Tukey HSD Test (16 points).
- Create a regression line to fit each of your three data categories. Include the regression formula (40 points).
- Write a 2 paragraph summary of your findings (32 points).
- Write a 1 paragraph reflection on how your results will affect your nursing practice (12 points).
- Organize your project into an electronic document with a linked table of contents (12 points).
- Present your data, findings and results in a visual presentation to the class (40 points).

EXTRA CREDIT

1. Each question missed on a quiz can be corrected to earn back 2 points. The corrections need to be made in another color ink and an explanation given. They are due 1 week after the quiz is returned.
2. Each student will have an opportunity to read a journal article about healthcare of their choosing. They must do a 2-3 minute informal presentation to the class discussing the statistical results of the article. This is worth 40 points.

GRADE COMPUTATION AND SCALE

Grades will be determined using the following criteria:

Attendance & Participation	12 pts each	96 points
Homework:	10 assignments, 16 pts each	160
Quizzes:	9 quizzes, 40 pts each	360
Final Project:		384
	TOTAL PTS	1000 points

Grades will be based on the following scale:

Percentages	Points	Grade	Significance	GPA
93-100%	930-1000	A	Exceptional	4.00
90-92.9%	900-929	A-		3.67
87-89.9%	870-899	B+		3.33
83-86.9%	830-869	B	Good	3.00
80-82.9%	800-829	B-		2.67
77-79.9%	770-799	C+		2.33
73-76.9%	730-769	C	Satisfactory	2.00
70-72.9%	700-729	C-		1.67
67-69.9%	670-699	D+		1.33
63-66.9%	630-669	D	Poor	1.00
60-62.9%	600-629	D-		0.67
00-59.9%	000-599	F	Failure	0.00

COURSE SCHEDULE

NOTE: The professor reserves the right to make changes to the scheduled classes based on needs of the students.

WEEK	TOPICS	ASSIGNMENT
Week 1	Chapters 1, 2	**-Homework 1, 2** **-Hypothesis** **-Raw Data or Survey** (due Week 2 at 5:00 pm)
Week 2	**QUIZZES for Chapters 1 and 2** Chapters 3, 4	**-Homework 3, 4** **-Frequency Tables** **-Overlaying Polygons** **-N, n, mean, median and mode** **-Standard Deviation and Variance** (due Week 3)
Week 3	**QUIZZES for Chapters 3 and 4** Chapter 6	**Homework 6** (due Week 4)
Week 4	**QUIZ for Chapter 6** Chapter 8, part of Chapter 9	**Homework 8** (due Week 5)
Week 5	**QUIZ for Chapter 8** Rest of Chapter 9, Chapter 7	**Homework 9, 7** **-Confidence Intervals** (due Week 6)
Week 6	**QUIZ for Chapter 9 and 7** Chapter 10	**Homework 10** **-Regression Line and Graph** (due Week 7)
Week 7	**QUIZ for Chapter 10** Chapter 11	**Homework 11** **-ANOVA** (due Week 8)
Week 8	**Complete Project in Class** **Present Project**	