Nursing (NURS) 713

Advanced Quantitative Research

Status:	Replaced with new revision, see the **course listing** ⧉ for the current revision ✖
Delivery mode:	**Paced study** ⧉
Credits:	3
Area of study:	Health
Prerequisites:	For MHS Students: **MHST 601**, **MHST 603** For MN-Gen Students: **NURS 603**, **NURS 608**
Precluded:	None
Faculty:	**Faculty of Health Disciplines** ⧉

Overview

This course extends the students' theoretical understanding of quantitative designs related to research in health care. Data management and analysis

methods will be examined. Students will gain competence in using common statistical tests and computer-based tools (such as IBM SPSS®) to be able to conduct and report quantitative research from an applied perspective.

Outline

Unit 1: Advanced Quantitative Methods for Health Research: Beginnings
Statistical analysis of data flows from your research question and hypotheses. Therefore, in this unit, we will revisit some basic research concepts, including research problems, types of variables and values (coding) of variables.

Unit 2: Introduction to SPSS
Before entering our data, we need to set up a SPSS data file and make decisions surrounding how to handle certain types of variables. In Unit 2 the process of creating a data file and entering data is described.

Unit 3: Data Checking and Descriptive Statistics
Descriptive statistics are useful for describing the sample and for determining, later on, the extent to which the sample represents the population. In this unit, we will use the descriptive statistics functions in SPSS to check our data for errors, plot a histogram that will show us how the data are distributed and calculate standard deviation, skewness and kurtosis to describe the distribution.

Unit 4: Describing the Data with Figures and Tables
SPSS can be used to generate tables that can be used for presentations, reports and manuscripts. There is an unlimited number of ways to present your data in SPSS, customizing tables and figures for your needs. This unit will explore approaches to presenting your data.

Unit 5: Differences Between Means: Statistical vs. Practical Significance
This unit is concerned with testing differences between groups (such as an intervention group and a control group) using SPSS. In previous statistics courses you probably calculated independent t-tests, paired t-tests, and perhaps one-way ANOVAs. We will calculate these statistics, and more, using SPSS.

Unit 6: Effect Sizes
Unit 6 discusses effect sizes, statistics used to describe the strength of relationships among variables. Effect sizes are becoming increasingly important in the interpretation of research studies. It is no longer sufficient to report that Group A did better than Group B; we need to know how much better.

Unit 7: Correlation and Regression
Unit 7 discusses correlation and regression. Correlation and regression typically

are used to describe relationships among variables. Correlations describe the association between variables and Regression analysis goes a step beyond calculation of a correlation to attempt to "predict" the values of one variable (the dependent, outcome or criterion variable) from another variable or set of variables (the independent or predictor variables).

Unit 8: Nonparametric Statistics
Data often is nonparametric or nonnormal. For example, a variable such as a risk factor may be either present or absent rather than being normally distributed within the population of interest. This unit deals with calculating statistics to see if there is association among different nonnormal variables.

Unit 9: Pulling it Together: Writing the Quantitative Research Report
In this unit, readings devoted to writing up the results will be revisited. Recall that a research paper should provide enough detail so that other researchers can understand and evaluate what was done and why. Further, there should be enough detail so that the study can be replicated by other researchers. The results section should also provide enough information so that other researchers can pool data in the form of a meta-analysis.

Learning outcomes

In this course, you will access health-related websites worldwide. You will also participate in email and computer conferencing with other students. Students are expected to connect to an Internet Service Provider at their own expense.

Objectives

Master of Health Studies/Nursing 713 Advanced Quantitative Methods for Health Research is designed to help students achieve the following course goals.

1. Select the appropriate analysis strategy for a particular research design;

2. Explain the limits and advantages of a particular analytic approach;

3. Conduct a data analysis from start to finish;

4. Interpret outputs from SPSS; and

5. Write a quantitative research report incorporating the results of quantitative data analysis.

Evaluation

In the MHS and MN:Gen programs, students must achieve an overall program GPA of 2.7 (B- or 70 percent), to graduate. The minimum passing grade requirement for each MHS and MN:Gen course is **C- (60 percent)** 📄 .

The following course activities will contribute to your course grade, with the percentage weighting of each activity as follows:

Activity	Weight
Forum Participation	20%
Assignment 1 Posting of Online Resources	10%
Assignment 2 Data File Creation	15%
Assignment 3 Descriptive Statistics and Data Check	15%
Assignment 4 Inferential Statistics and Report	40%
Total	**100%**

Conference Participation (20%)

Feedback regarding conference participation will be ongoing. Quality of input (not quantity) is the goal. Feedback will focus on the student's ability to provide organized and original contributions that reflect analysis and synthesis of the material presented.

Participation Criteria

Participation will be measured against the following criteria:

1. Complete online contributions during the unit conference timeframe.

2. Respond to online discussions at least twice each week.

3. Contribute original thoughts or ideas to online discussions.

4. Cite relevant resources to validate points made.

5. Demonstrate openness to divergent points of view.

6. Be respectful of the perceptions of others.

7. Integrate material from previous units to formulate ideas and generate dialogue.

8. Present responses that follow the rules of grammar and spelling in the online contributions.

Assignment 1: Posting of Online Resources (10%)

During Units 2 through 8, you will post information about online resources related to quantitative data analysis to the Online Resources forum. The appropriateness of these resources will be evaluated by your instructor and you will receive up to 10% of your course grade based on this evaluation.

Assignment 2: Data File Creation (15%)

In this assignment, you will set up a data file for storing and collecting data from a sample survey.

Assignment 3: Descriptive Statistics and Data Check (15%)

Using a provided data set, you will check the data file for errors and prepare an APA table of descriptive statistics separated by gender.

Assignment 4: Inferential Statistics and Report (40%)

Using a provided data set and your SPSS program, you will develop and test a hypothesis based on the list of variables in the data set. You will prepare a table and write up the results of your analysis.

Materials

Field, A. (2018). *Discovering statistics using IBM SPSS® statistics* (5th ed.) Thousand Oaks, CA: Sage. 📖 (Print)

Online Materials

- Introduction: Provides essential information about the course design and materials.

- Schedule: Outlines the timing of course activities.

- Units: Contains the units that make up the course.

- Assessment: Outlines the assignments/evaluation procedure of the course.

- Reference: Listing of required readings and websites included in the course.

Electronic Materials

SPSS 26.0 GradPack Version for Windows or MAC OS.

Technical Requirements

Computer System

In order to successfully complete this course, you must own or have ready access to certain computer hardware and software programs. For complete and up-to-date information on the minimum computer requirements required to complete the graduate nursing courses, visit the **Centre for Nursing and Health Studies** ☑ technical site.

Important links

> **Academic advising** ☑

> **Program planning** ☑

> **Request assistance** ☑

> **Support services** ☑

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

Updated December 18, 2023