UNIVERSITY OF ALBERTA
COLLABORATIVE BACCALAUREATE
NURSING PROGRAM

Grande Prairie Regional College
Grant MacEwan College
Keyano College
Red Deer College
University of Alberta

NURSING 4970
Nursing Research and Statistics II
Course Outline

Developed by:
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NURSING RESEARCH & STATISTSICS II

NURSING 4970* *4 (2-5-1) 7 weeks.*
Students will continue to develop their skills to critically read, analyze, and begin to use knowledge gained from research in their practice. Building on knowledge from N3970, this course focuses on understanding the implementation phase of research and inferential statistics. Students will also examine trends and issues in developing evidenced-based practice for the profession of nursing. (Pre-requisite: N3970)

Course Hours: 14 hours of "structured" teaching/learning time (FRS's) and 6 hours of lab in 7 weeks. Additional estimated time of 30 hours for independent study and group work.

Course Description
This course builds on content from Nursing 3970. Students will continue to develop their skills to critically read, analyze and begin to use knowledge gained from research in their practice. The focus of this course is on understanding the implementation phase of research (data collection, data analysis, interpretation of findings). Students will also examine trends and issues in developing evidenced-based practice for the profession of nursing. Also included in this course are inferential statistics.

Course Objectives:
1. Discuss the types, advantages, and limitations of data collection methods used in both quantitative and qualitative nursing research methods.
2. Identify the criteria for determining the validity and reliability of measurement tools.
3. Discuss the criteria for determining confirmability of findings in a qualitative study.
4. Identify appropriate data collection methods for various qualitative and quantitative designs.
5. Differentiate data analysis methods for both quantitative and qualitative research.
6. Identify the purpose of and appropriateness of commonly used inferential statistics.
7. Distinguish between type I and type II errors and their effects on findings.
8. Differentiate between the meanings of statistical significance and clinical significance.
9. Apply critiquing criteria for an analysis of a published research report.
10. Develop and use a systematic approach for reading and critical appraisal of multiple published research reports on a selected topic.
11. Determine the applicability of knowledge gained from research for evidence-based practice.
12. Identify the role of a nurse in promoting research activities and using knowledge from research in the practice settings.
13. Discuss issues including barriers and facilitating factors influencing the advancement of nursing research and evidence-based practice.

Instructors:

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Course Hours:

Thursdays 1200-1550

Text:

Lobiondo-Wood, G., & Haber, J. (1998). Nursing research: Methods, critical appraisal, and utilization. (4th edition). St. Louis: Mosby.

Norman, G. R., & Streiner, D. L. (1999). PDQ Statistics. (2nd Edition). Toronto: B. C. Decker Inc.

N 4970 is integrated with N 490 learning packages.

Fixed Resource Session Schedule

STATISTICS	NURSING RESEARCH
#1 Introduction and review Concepts of correlation	#1 Review of NS 3970 content Ethics in research
#2 Sample/population/probability Confidence intervals	#2 Critique of sample, quantitative data collection Rigor in data collection, levels of measurement Reliability and validity of instruments
#3 Sampling distribution around mean Type I/II error	#3 Qualitative data collection Interviewer as instrument Methods of data collection Rigor in data collection
#4 Parametric tests – t-test, ANOVA	#4 Critique of results
#5 Non-parametric tests – Chi Square, Z scores	#5 Interpretation of findings
#6 Regression analysis	#6 Issues in nursing research (funding, barriers, research utilization)
#7 Final exam	#7 Final Exam

YEAR IV (Labs 2 x 3 hours = 6.0 hr)

LAB # 1 Qualitative Analysis (3.0)

1. Using a tape recording provided by the instructor, students will read a transcribed text of a tape recorded interview between a researcher and participant.

2. Perform a content analysis on qualitative data provided by your instructor and begin to thematically analyze the data.

LAB # 2 Quantitative Analysis (3.0 hr.)

1. For each of the four hypotheses provided by the instructor, identify the variables, level of measurement and the appropriate statistical test. Your instructor will provide you with an example. Provide rationale for your choice of statistical test. (This could be done as a worksheet prior to the lab)

2. This activity is an opportunity to review previously learned content related to descriptive statistics and to integrate new concepts related to inferential statistics, specifically, Pearson r.

Assume that you are testing the following hypothesis: There is a positive correlation between height and weight. Using data provided by your instructor, such as height or weight or any other data at the interval or ratio level of measurement, identify the level of measurement for each variable, statistics to be used, and level of significance for hypothesis testing. Additionally, state the probability of committing a type I error.

Using the same data provided by your instructor, review the previously calculated descriptive statistics (mean, range, standard deviation) as well as the correlation coefficient and level of significance. Visual displays of the information as well as a scattergram will be provided to facilitate your understanding of the correlation coefficient.

After reviewing the data presented, discuss whether the hypothesis is supported or not supported and the possible reasons for each outcome.

3. The purpose of this activity is to help you distinguish the uses of the various inferential statistics. In addition, it provided practice in critiquing the use of inferential statistics in a research report.

Your instructor will assign you a research study using statistical tests which you have studied previously. In lab, in small groups, identify the problem statement, the hypothesis(es), the variables and their level of measurement, the sample size and design.

Continue working in small groups do the following:

Identify the statistical test(s) employed in the study.

Determine whether the researcher's choice of test(s) was appropriate by examining the other aspects of the study previously identified.

Present your group's conclusions to the rest of your lab group.

[These activities have been adapted from Feldman & Levin (1998), Instructor's Resource Manual to accompany Nursing Research: Methods, Critical appraisal and utilization. Mosby.]

EVALUATION:

1. PAPER: Critique of a Research Report (45%) **Due: December 14, 2000 1700h**

Instructors will provide 2 research reports (one qualitative and one quantitative) from which the student will select one of these reports to critique. All phases will be critiqued including the conceptual, empirical, and interpretive phases of the report. For the critique, students will use the critiquing criteria form, readings, and fixed resource session. APA format and scholarly writing is expected.

Length of paper: about 12 pages double-spaced.

2. FINAL EXAM: (55%) **Date: TBA**

A final multiple choice exam will be written at the end of YEAR IV which will test year three and four concepts in research and statistics. 1/3 of questions will be from Year III and 2/3 of questions from Year IV

Part I: Statistics – **the student must pass this section with a minimum mark of 50% or a grade of "3" will be given regardless of other assignment marks.**

Part II: Nursing Research

Assignment Policy

All assignments are to be passed in at the time and place they are due. Extensions on assignments may be granted and must be negotiated with the instructor prior to the due date and with a date specified for late submissions.

A penalty of 5% for each working day that an assignment is submitted after the due date will be deducted from the final mark. For example, a paper scored at 75% would receive an adjusted grade of 70% if handed in one day late. Late assignments are due by 1600h and must be verified (stamped with date and time) by nursing office personnel.