UNIVERSITY OF ALBERTA
COLLABORATIVE BACCALAUREATE
NURSING PROGRAM

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

NURSING 3690
Nursing Research and Statistics
Course Outline
Fall 2004/Winter 2005

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NURSING 3690 Nursing Research and Statistics 6(0-6-0.5).

Introduction to the process of research through a comparative analysis of selected studies exemplifying different theoretical, methodological and analytical approaches. Emphasis will be on the communicability of research, the needs of the research consumer, and the development of skills of critical appraisal. Also included are introduction to descriptive and inferential statistics and the application of statistical methods to nursing problems.

***Note: In lieu of taking NS 3690, NS 3010 and a 3 credit UT statistics course may be used but credit cannot be granted to NS 3690 if credit is obtained for NS 3010 and/or the statistics course.**

Course Description:

The course introduces students to the process of nursing research through critical appraisals of selected quantitative and qualitative studies. Emphasis will be on understanding the research process and in knowing how to critically read, analyze, and begin to apply the knowledge gained from research in practice. The focus of this course will be on the planning and implementation phases of the research process which includes: the research problem and purpose, the literature review, theoretical /conceptual frameworks, variables and hypotheses if applicable, research questions, ethical considerations, research designs, study populations, data collection and analysis, and the interpretation of findings. Additionally, students will also examine trends and issues in developing evidence based practice for the nursing profession.

The course also introduces students to the descriptive and inferential statistical concepts required to understand and critique quantitative research designs.

Course Objectives:

At the completion of this course, the student will:

1. Discuss the types, advantages, and limitations of data collection methods used in both quantitative and qualitative nursing research methods.
2. Discuss 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. Discuss 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 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. Discuss 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.

Course Hours:

 Fall 2004: There are six (6) hours of seminar scheduled per week for seven weeks, three hours for nursing research approaches and three hours for statistics content. Independent group work will be scheduled during scheduled seminar times, as determined by the instructor. There will also be 6 hours of laboratory time scheduled during the seven weeks for application of selected research and statistical concepts.

Winter 2005:   There are six (6) hours of seminar scheduled per week for seven weeks, three hours for nursing research approaches and three hours for statistics content. Independent group work will be scheduled during scheduled seminar times, as determined by the instructor. There will also be 6 hours of laboratory time scheduled during the seven weeks for application of selected research and statistical concepts.

Co-requisite: Nursing 3900

Withdraw Deadline: January 21, 2005

Grading Criteria for Nursing Courses:

Alpha Grade	4 Point Equivalent	Descriptor
A+	4.0	Excellent
A	4.0	Excellent
A-	3.7	First Class Standing*
B+	3.3	First Class Standing*
B	3.0	Good
B-	2.7	Good
C+	2.3	Satisfactory
C	2.0	Satisfactory
C-	1.7	Satisfactory

Note: A C- is the required pass in this nursing course.

* Very Good/Above Average is an alternate descriptor for First Class Standing.

Text:

Gillis, A., and Jackson, W. (2002). *Research for nurses: Methods and interpretation.*
Philadelphia, PA: F.A. Davis

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Whenever possible Nursing 3690 utilizes research studies pertaining to the scenarios in NS 3900 and 3940. However, it may be necessary to use additional studies to exemplify certain research concepts and principles.

Attendance at Seminars:

The purpose of the seminars is to highlight concepts of basic statistical analysis and the nursing research process. Study of these concepts will assist the student to develop the ability to understand and critique published nursing .research. The opportunity to discuss and critique selected nursing research articles and statistical concepts in small groups of peers will assist in understanding these concepts.

Small Group Work:

Students will be provided opportunity to work in groups of three or four for independent learning.

A.   Small group work time will be assigned by the instructors and topics will be provided for this work. For discussions related to the nursing research concepts, a list of research reports related to the Scenarios in NS 3900 and NS 3940 will be provided and students will critique these articles in relation to the criteria previously covered in seminar, and using the critiquing guides provided in the text. For discussions related to the statistical concepts, the instructor will provide materials for group work.

B.   In the nursing research component of the course each student will select two research reports from refereed sources, one discussing a quantitative study and one reporting a qualitative study. These reports will be selected prior to the first scheduled research seminar and brought to the seminars each week. It is advisable to consult the instructor related to the appropriateness of the report. It is anticipated these reports will be relevant to the scenarios being covered in NS 3900 and NS 3940. These reports will be utilized during small group discussions, and as part of the Research Critique assignments (See Pages 6 and 8).

Seminar Topics
Fall 2004

Week/Dates	Nursing Research	Statistics
1 Sept 7-10, 2004	Overview of nursing research; review of Nurses' role in nursing research; methods of inquiry; frameworks for critique of research reports. The research question, problem, theoretical framework (if applicable) and the literature review	Introduction to data and statistics Overview of data sources, descriptive statistics, and statistical inference
2. Sept 13-17, 2004	Quantitative research designs: descriptive, correlational, quasi-experimental, experimental	Descriptive statistics (Univariate statistics): Tabulating and displaying data
3 Sept 20-24, 2004	Qualitative research designs: ethnography, grounded theory, phenomenology, historical, action research	Descriptive statistics (Univariate statistics: Measure of location and measure of variability
4 Sept 27 – Oct 1, 2004	Small Group Study Activity Work with research studies identified by the instructor	Introduction to probability, probability distribution, binomial probability distribution
5 Oct 4 – 8, 2004	Population and Sampling	Continuous probability distribution, sampling and sampling distribution
6 Oct 11 – 15, 2004	Data Collection, for example, Interviews, Surveys, etc	Statistical Inference, Review
7. Oct 18 – 22, 2004	Take Home Mid Term Exam Handed Out **Due October 27, 2004 at 1300 Hours**	Mid term Exam: Date, Time, Format TBA

LABS for Fall 2003: (6.0 hrs)

The focus of these labs is:

 Statistics: understanding the purpose, use, and interpretation of descriptive statistics (*frequency distributions, measures of central tendency and variability, standard scores, levels of measurement, reading descriptive tables and graphs)* for quantitative nursing research.

Lab One: Monday Sept 27, 2004. 1800--1930
Lab Two: Monday October 18, 2004. 1800--1930

Nursing Research: examining appropriate research phenomena, questions, and populations to study using quantitative research methods. *Also included are levels of measurement and reading descriptive tables and graphs.* Two nursing research articles

from those discussed in seminars, and chosen by the instructor, will be used for the interpretations.

Lab: Monday October 4, 2004. 1800—2050.

EVALUATION for Fall 2004:

1. Weekly Critique Two (2) Research Reports: **Value: 10% of Final Grade**

The two articles each student has previously chosen (see page 4) will be used for this assignment. Students will critique one aspect of each report according to the schedule set out below (five weekly critiques).
 The criteria outlined in the Gillis and Jackson (2002) text and utilized in seminars and small group sessions will be used. APA and scholarly writing formats are to be used.
The length of each weekly critique is not to exceed 300 words.

Topic list for Weekly Critiques:

1. The Research Question and the Problem. (Due **Sept 15**, 2004)
2. The Literature Review, The Theoretical Framework if applicable
3. (Due **Sept 22**, 2004)
4. The Research Design, including Hypotheses if applicable (Due **Sept 27**, 2004)
5. The Population (Due **Oct 13**, 2004)
6. The Sampling Method, Data Collection (Due **Oct 20**, 2004)

Due: Weekly as noted above, at the beginning of the seminar. These assignments will be marked and returned by Monday of the following week.

2. Weekly Statistics Assignments: Value: **10% of Final Grade**

These assignments, in a worksheet format, will be completed weekly, marked within 48 hours and returned.

3. Mid-Term Examination: **Value: 30% of Final Grade**

Part I: Statistical Concepts: (Value 15% of Final Grade)
        Time and Place, during the week of October 18, 2004 TBA

Part II: Nursing Research Concepts: (Value 15% of Final Grade)

A Take Home Examination will be handed out at the end of class on Oct 20, 2004. It will be due **October 27, 2004 at 1300 hours.**

Seminar Topics
Winter 2005

Week/Dates	Nursing Research	Statistics
1 Jan 4–7, 2005	Ethics in research Small Group Activity	Internal estimation of a population mean, determining the sample size: Large Sample Case Small Sample Case
2. Jan 10-14, 2005	Rigor in Quantitative Research Designs: Sampling, and Data Collection Reliability and Validity of Instruments Levels of Measurements Applicability	Hypothesis Testing: test about a population mean: Large Sample Case Small Sample Case
3. Jan 17-21, 2005	Rigor in Qualitative Research Design Data Collection, eg. Interviewer as Instrument Trustworthiness	Hypothesis Testing: Test about two population means: Large Sample Case Small Sample Case
4. Jan 24-28, 2005	Analysis of Data, focus on Qualitative Data	Analysis of Variance (ANOVA) F test
5. Jan 31–Feb 4, 2005	Critique of Results, Interpretation of Qualitative and Quantitative findings Small Group Activity	Inference about Population Variance—Chi Square test Test of Goodness of Fit and Independence
6. Feb 7-11, 2005	Interpretation of Epidemiological studies Application of selected research methodologies to evaluation of therapeutic nursing programs..	Correlation and Simple Regression Review
7. Feb 14-18, 2005	Issues in nursing research (funding, barriers, research utilization), Course Evaluation, Hand out Take Home Examination	Final Examination: Time and Place TBA

Labs for Winter 2004 (6.0 hr)

Nursing Research Lab: Qualitative Analysis (3.0)

1. Students will review a transcript of a tape recorded interview, provided by the instructor.
2. Students will perform a content analysis on data in the transcript provided and begin to thematically analyze it.

Statistics Labs: Inferential Statistics (3.0)

The focus is understanding the purpose, use, and interpretation of inferential statistics (*t-Tests, ANOV, Chi Square, Regression Analysis, Factor Analysis)* for quantitative nursing research.

Dates and Times of Labs TBA by January 4, 2005

EVALUATION:

1. Weekly Critique Two (2) Research Reports: **Value: 10% of Final Grade**

The two articles each student has previously chosen (see page 4) will be used for this assignment. Each week for five weeks, students will critique one aspect of each report according to the schedule set out below. The criteria outlined in the Gillis and Jackson (2002) text and utilized in seminars and small group sessions will be used. APA and scholarly writing formats are to be used. **The length of each weekly critique is not to exceed 300 words.**

Topic list for Weekly Critiques: (NOTE:) Due dates may change after Jan 2, 2005.

1. Evidence Ethical Review of the Study and Protection of Human Rights (Due **Jan 13**, 2005)
2. Rigor in Sampling and Data Collection (Due **Jan 20,** 2005)
3. Data Analysis, Rigor in Data Analysis (Due **Feb 3,** 2005)
4. Reliability and Validity, Trustworthiness of Study (Due **Feb 10,** 2005)
5. Interpretation and Discussion of Findings (include implications for nursing practice) (Due **Feb 17,** 2005)

Due: Weekly, as noted above, at beginning of the seminar These assignments will be marked and returned by Monday of the following week.

2. Weekly Statistics Assignments: **Value: 10% of Final Grade.**

These assignments, in a worksheet format, will be completed weekly, marked within 48 hours and returned

3. Final Examination: **Value: 30% of Final Grade.**

Part I: Statistical Concepts: (Value 15% of Final Grade)
Time and Place, during the week of February 14, 2005 TBA

Part II: Nursing Research Concepts: (Value 15% of Final Grade)

A Take Home Examination will be handed out at the end of class on February 17, 2004 It will be due **February 28, 2004 at 1300 hours.**

PLEASE NOTE: The student must pass the statistics portion of the course with a minimum Grade of "C-" to receive credit for this course.

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