



**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 3010
Nursing Research and Statistics
Course Outline
Fall 2005/Winter 2006**

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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 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.

Winter 2006: 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: February 3, 2006

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

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. Students are responsible for searching for and bringing articles related to each scenario to seminar

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 research reports related to the Scenarios in NS 3900 and NS 3940 will be identified by each student and be critiqued in relation to the criteria previously covered in seminar. The critiquing guides provided in the text will also be used. 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 related to the seminars covered in NS 3900 and NS 3940, from refereed sources. One study will report a quantitative study and one 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. 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 2005

*** Schedule May Vary

Dates	Nursing Research	Statistics
Sept 6--9, 2005	Overview of nursing research; review of Nurses' role in nursing research; methods of inquiry; frameworks for critique of research reports.	What is Statistics? Random Samples Introduction to Experimental Design
Sept 12--16, 2005	The research question, problem, theoretical framework (if applicable) and the literature review	Bar Graphs, Circle Graphs, and Time-Series Graphs Frequency Distributions, Histograms, and Related Topics Stem and Leaf Displays
Sept 19--23, 2005	Quantitative research designs: descriptive, correlational, quasi-experimental, experimental	Measures of Central Tendency: Mode, Median, and Mean Measures of Variation Mean and Standard Deviation of Grouped Data
Sept 26 – 30 2005	Qualitative research designs: ethnography, grounded theory, phenomenology, historical, action research	What is Probability? Some Probability Rules—Compound Events Trees and Counting Techniques
Oct 3– 7, 2005	Population and Sampling	Introduction to Random Variables and Probability Distributions Binomial Probabilities Additional Properties of Binomial distribution
Oct 11—14, 2005	Small Group Activity Work with research studies identified by instructor	Graphs of Normal Probability Distributions Standard Units and Areas Under the Standard Normal Distribution Areas Under Any Normal Curve
Oct 17—21, 2005	Data Collection, for example, Interviews, Surveys, etc	Review
Oct 24—28, 2005	Take Home Mid Term Exam Handed Out Due October 31, 2005 at 0830 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 October 7, 2005. 1800--1930

Lab Two: Monday October 21, 2005. 1800--1930

Nursing Research: A nursing clinical situation related to one of the scenarios in NS 3900 will be provided. Students will describe the research phenomena, develop a research question, identify a population to study, and develop a quantitative research method to examine the research question. *Levels of measurement and type of descriptive tables and graph needed will be identified.*

Lab: This is a three hour Lab. Day and Time to be negotiated at first class.

EVALUATION for Fall 2005:**1. 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 each report using 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 critique will focus on the following topics:

1. The Research Question and the Problem.
2. The Literature Review, The Theoretical Framework if applicable
3. The Research Design, including Hypotheses if applicable
4. The Population
5. The Sampling Method
6. The Data Collection Method

Scholarly writing techniques and APA format will be used. **Total length of both critiques combined will be 1000 words.** A hard copy of this assignment will be submitted to the instructor. Electronic submissions may be permitted upon prior consent of the instructor.

Due Date: October 17, 2005 at 0830 hours.

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 26, 2005. It will be due **October 31, 2005 at 0830 hours.**

**Seminar Topics
Winter 2006
This Schedule May Be Subject to Change**

Dates	Nursing Research	Statistics
Jan 4-6, 2006	Ethics in research Review of Qualitative and Quantitative Research methodologies	Sampling Distributions The Central Limit Theorem
Jan 9-13, 2006	Rigor in Quantitative Research Designs: Sampling, and Data Collection Reliability and Validity of Instruments Levels of Measurements Applicability	Estimating μ When σ Is Known Estimating μ When σ Is Unknown
Jan 16-20, 2006	Rigor in Qualitative Research Design Data Collection, eg. Interviewer as Instrument Trustworthiness	Introduction to statistical Tests Testing the Mean μ Tests Involving Paired Differences (Dependent Samples) Testing The Difference of Two Means
Jan 23-27, 2005	Analysis of Data, focus on Qualitative Data	Scatter Diagrams and Linear Correlation Linear Regression and the Coefficient of Determination Inferences for Correlation and Regression Multiple Regression
Jan 30–Feb 3, 2005	Critique of Results, Interpretation of Qualitative and Quantitative findings Small Group Activity: Issues in nursing research (funding, barriers, research utilization).	Inferences Using the Chi-Square Distribution: Overview of the Chi- Square Distribution Chi-Square: Tests of Independence Chi-Square: Goodness of Fit Testing and Estimating a Single Variance or Standard Deviation
Feb 6-9, 2005	Interpretation of Epidemiological studies Application of selected research methodologies to evaluation of therapeutic nursing programs.	Inferences Using the F Distribution Testing Two Variances One-way ANOVA: Comparing Several Sample Means Introduction to Two-Way ANOVA
Feb 13-17, 2005	Take Home Examination Posted on Blackboard. Due Feb 27, 2006 at 0830 hrs	Review and Final Examination: Time and Place TBA

Labs for Winter 2004 (6.0 hr) Dates and Times of Labs TBA January 2006

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.

EVALUATION:

1. Report of Research Critique:

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 the following topics. The criteria outlined in the Gillis and Jackson (2002) text and utilized in seminars and small group sessions will guide the critique. APA and scholarly writing formats are to be used. **The length of the combined critiques is not to exceed 1000 words.**

Topic to be Critiqued:

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

Due: February 9, 2006 at 1600 hours, in hard copy/paper format. An electronic copy may be submitted with prior consent of the instructor.

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 posted on Blackboard February 1, 2006. It will be due, in hard copy/paper **February 27, 2006 at 0830 hours.** An electronic copy may be submitted with prior consent of the instructor.

PLEASE NOTE: The student must pass the each of the statistics portion and the nursing research methods 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.