**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 2007/Winter 2008
Sept 6-Oct 19, 2007 & Jan 3-Feb 14, 2008

Developed by:
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NURSING 3690
Nursing Research and Statistics
6 credits (0-6-0.5) UT 100 Hours 14 Weeks.

Instructors:

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Calendar Statement:

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.
Co requisites: NS 3900.
*Note: Students with credit in NS 3970 and NS 4970, or NS 4960 will not receive credit for NS 3690.

Course Hours:

NS 3690 is 14 weeks in total. There are six (6) hours of seminar/lecture scheduled per week, three hours for nursing research approaches and three hours for statistics content.

Research Class (Fall & Winter): Tuesday & Thursday 1300-1420 Portable J
Statistics Class (Fall & Winter): Monday & Wednesday 1300-1550 Portable J
**   Monday lab   1800-2100 A212**

There will also be 6 hours of laboratory time scheduled during each of the seven weeks for application of selected research and statistical concepts. The statistical laboratory time will be computer assisted. The stats lab is scheduled for Monday, Oct 1, 1800-2100, and the research lab is scheduled for Oct 15, 1800-2100.

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.

Required Textbooks for NS 3690:
Corty, E. W. (2007). *Using and interpreting statistics: A practical text for health, behavioral, and social sciences.* St. Louis, MI: Mosby.

Loiselle, C., G., & Profetto-McGrath, J. (2007). *Canadian essentials of nursing research.* (2nd ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Recommended Resources for NS 3690:

Whenever possible Nursing 3690 utilizes research studies pertaining to the scenarios in NS 3900 and 3940. Students will be required to find appropriate research articles as well as the tutor will place articles on Blackboard if necessary.

Important Policies

Attendance at Seminars/Lectures and Labs:
The purpose of the seminars/lectures and labs 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.

Important Dates:
Please check the *Grand Prairie Regional College* calendar for the last day to withdraw from Nursing 3690 with permission. Note after this date you will be charged full fees for this course.

Nursing Program Policies
Please refer to the *Grande Prairie Regional College* calendar and the *University of Alberta Collaborative Baccalaureate Nursing Program with Grande Prairie Regional College Student Handbook* 2007-2008 for specific nursing program policies that may pertain to this course.

Assignment Policy:
Research assignments are due at the date and time specified in this course outline. They are to be submitted to the Nursing Office personnel and must be verified (stamped with date and time). 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. Extensions will not be granted the day the assignment is due.

A penalty of one letter grade per day will be deducted from the final grade of a late assignment. For example, a paper graded at a C would receive an adjusted grade of C- if handed in one day late.

It is the responsibility of the student to ensure electronically submitted papers and assignments are delivered and retrievable to the instructor (i.e. blackboard drop box or emailing assignments). If the instructor is unable to open the documents or if they are sent in error, the assignment will be considered late and the student will have one letter grade deducted from the final grade. It is highly recommended that students ensure their assignments have been retrieved by the tutor prior to the due date and time.

In the statistics portion of the class, assignments will be handed out in class and returned to the instructor at the end of that same class.

Plagiarism and Cheating:

Please refer to your rights and responsibilities in the *Grande Prairie Regional College* 2007/2008 calendar.

We expect honesty from our students. This demands that the contribution of others be acknowledged (GPRC calendar, 2007/2008). Penalties will be given according to the degree of the plagiarism or cheating. If you are unsure whether an action is plagiarism or not, please consult your tutor. Cheating refers to dishonest conduct such as speaking in an exam, bringing written material not authorized by the tutor, tampering with grades, or consciously aiding another student to cheat. Please refer to your 2007/2008 GPRC calendar for more information.

Grading System

A grade will be assigned for each assignment using grading criteria and then based on the grade descriptors (excellent, good, satisfactory, poor). Rationale will be given as to the assigned grade.

Alpha	4-point equivalence	Descriptor
A+	4.0	
A	4.0	Excellent
A-	3.7	First Class
B+	3.3	Standing
B	3.0	
B-	2.7	Good
C+	2.3	
C	2.0	
C-	1.7	Satisfactory

These are considered passing grades in nursing courses

D+	1.3	Poor
D	1.0	Minimal Pass
F	0.0	Failure

These are NOT considered passing grades in nursing courses.

Students **may** receive a grade of D or D+ in an assignment or component of a course, but must have an overall grade of C- to achieve a passing grade in a nursing course.

Refer to the GPRC calendar 2007-2008 for further details regarding the grading policy and the progression criteria in the Bachelor of Science in Nursing program.

<u>PLEASE NOTE</u>: Students must pass 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. If a student fails either of the stats or research portion, they will receive an "F" in NS 3690.

Grade Distribution
NS 3690

Name:_____   Tutor:_____

Evaluation	Grade	4-point Equivalent	Percentage of Total Mark	Value
Fall, 2007				
Critique Part I			10%	
Weekly Stats Assignment Part I			10%	
Research Midterm Exam			15%	
Statistics Midterm Exam			15%	
Winter, 2008				
Critique Part II			10%	
Weekly Stats Assignment Part II			10%	
Research Final Exam			15%	
Statistics Final Exam			15%	
				Total:

Total 4-Point Equivalent Values:_____ **Translated to Final Grade:**_____

Grades for each assignment were translated into the 4-point equivalent then multiplied by the percentage of total mark for each assignment. The values of those percentages are added up to make a total. That total was converted back into the grade scale to receive your final grade. If you have any questions or concerns, please see your tutor. Exams can be viewed by setting up an appointment with your tutor.

EVALUATION FOR NS 3690
FALL 2007

1. Critique of a Research Report Part I: Value: 10% of Final Grade

Students will critique an instructor chosen research report (either a qualitative or quantitative report) using the criteria outlined in the text and information from seminars/lectures. Please refer to Chapter 17 in Polit and Beck, 2007 for guiding questions to use when critiquing the research article. 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
3. The Theoretical Framework if applicable
4. The Research Design, including Hypotheses if applicable
5. The Population
6. The Sampling Method
7. The Data Collection Method

Total length of the critique is 1000 words.

Grading Guide is located at the back of the course outline

Due Date: October 22, 2007 at 0900 hours.

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

Assignments will be completed in class.

The raw scores for each assignment will be added and given a total percentage and grade determined.

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

Questions will arise from labs, seminars/lectures and the textbook. The instructor will discuss the composition of the exam closer to the exam date with the students (i.e. number and format of questions). Please refer to the Examination Policies located in your Student Handbook if you have any further questions.

Each midterm exam will be given a percentage out of 100. Your grade will be based on the following grid:

Grade	Designation
A+	Excellent
A	
A-	First Class Standing
B+	
B	Good
B-	
C+	Satisfactory
C	
C-	
D+	Minimal Pass
D	
F	Fail

Part I: Statistical Concepts: (Value 15% of Final Grade)

    Date: October 24
    Time: 1300 – 1550
    Place: Portable J

Part II: Nursing Research Concepts: (Value 15% of Final Grade)
This exam will be composed of multiple choice and short answer questions.

    Date: October 18th, 2007
    Time: 1300 hours-1420hrs
    Place: Portable J

EVALUATION FOR NS 3690
Winter 2008

1. Critique a Research Report Part II: Value: 10% of Final Grade

Students will critique a research report (either a qualitative or a quantitative) which is instructor chosen using the criteria outlined in the text and information from seminars/lectures. Please refer to Chapter 17 in Polit and Beck, 2007 for guiding questions to use when critiquing a research article. APA and scholarly writing formats are to be used.

Students will critique the following topics:

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)

Total length of the critique is 1000 words.

Grading Guide is located at the back of the course outline

   Due: February 6, 2008 at 0830 hours

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

   Assignments will be completed in class.

   The raw scores for each assignment will be added and given a total percentage and a grade determined.

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

Questions will arise from labs, seminars/lectures and the textbook. The instructor will discuss the composition of the exam closer to the exam date with the students (i.e. number and format of questions). Please refer to the Examination Policies located in your Student Handbook if you have any further questions.

Each final exam will be given a percentage out of 100. Your grade will be based on the following grid:

Grade	Designation
A+	Excellent
A	
A-	First Class Standing
B+	
B	Good
B-	
C+	Satisfactory
C	
C-	
D+	Minimal Pass
D	
F	Fail

Part I: Statistical Concepts: (Value 15% of Final Grade)
        Date and Time TBA

Part II: Nursing Research Concepts: (Value 15% of Final Grade)
The final exam for nursing research will be a take home exam and will be given out on February 7, 2008. Students have one week to complete and hand in the final exam. The take home exam will be given a raw score and a grade determined.

     Date: February 14th, 2008

Time: 1300 hours the Exam must be handed into the instructor during class.

Seminar Topics*
Fall 2007

Dates	Nursing Research	Statistics
September 6	Overview of nursing research; review of Nurses' role in research; methods of inquiry; frameworks for critique of research reports.	
September 10-14 Jennifer Hardy	Key concepts, the research process, research question, problem, theoretical framework and the literature review	What is Statistics? Random Samples Introduction to Experimental Design
September 17-21 Katherine Wilde	Quantitative research designs	Bar Graphs, Circle Graphs, and Time-Series Graphs Frequency Distributions, Histograms, and Related Topics Stem and Leaf Displays
September 24-28 Katherine Wilde cont	Qualitative research designs	Measures of Central Tendency: Mode, Median, and Mean Measures of Variation Mean and Standard Deviation of Grouped Data
October 1-5 Carl and Mae	Population and Sampling	What is Probability? Some Probability Rules— Compound Events Trees and Counting Techniques
October 8-12 Thomas	Data Collection	Introduction to Random Variables and Probability Distributions Binomial Probabilities Additional Properties of Binomial distribution
October 15-19 Nursing Organizations	Mid-term exam	Graphs of Normal Probability Distributions Standard Units and Areas Under the Standard Normal Distribution Areas Under Any Normal Curve
October 22-26		Mid-term exam

* The schedule is subject to change

LABS
FALL 2007
(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.

NOTE: This lab is scheduled for Oct 1, 1800-2050 in A212

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.*

NOTE: This lab is scheduled for Oct 15, 1800-2050 in A212

Seminar Topics*
Winter 2008

Dates	Nursing Research	Statistics
January 3	Ethics in research Review of Qualitative and Quantitative Research methodologies	
January 7-11 Johnny Worthington	Rigor in Quantitative Research Designs: Sampling, and Data Collection Reliability and Validity of Instruments Levels of Measurements Applicability	Sampling Distributions The Central Limit Theorem Estimating μ When σ Is Known Estimating μ When σ Is Unknown
January 14-18	Validity and Trustworthiness in Qualitative Research Design Data Collection, eg. Interviewer as Instrument	Introduction to statistical Tests Testing the Mean μ Tests Involving Paired Differences (Dependent Samples) Testing The Difference of Two Means
January 21-25 Carrie & Scott	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
January 28-February 1 The Smiths	Critique of Results, Interpretation of Qualitative and Quantitative findings Issues in nursing research	**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
February 4-8 Home care	Interpretation of Epidemiological studies Application of selected research methodologies.	**Inferences Using the *F* Distribution** Testing Two Variances One-way ANOVA: Comparing Several Sample Means Introduction to Two-Way ANOVA
February 11-15	Final Examination **Due February 14**	Review and Final Examination: Time and Place TBA

* The schedule is subject to change

LABS
Winter 2008
(6.0 hrs)
Dates and Times of Labs TBA January 2008

Statistics Labs: Inferential Statistics (3.0)
The focus is on understanding the purpose, use, and interpretation of inferential statistics (*t-Tests, ANOV, Chi Square, Regression Analysis, Factor Analysis)* for quantitative nursing research.

NOTE: this lab is scheduled February 4, 1800-2050 in A212

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.

NOTE: this lab is scheduled for Jan 28, 1800-2050 in A212

Grading Guide
Critiquing a Research Report

(A) Excellent

Displays exceptional organization and flow of ideas throughout the paper. Answers critique questions in a brief and succinct manner.

Demonstrates clear and in-depth understanding of the article.

Critique is objective, comprehensive, thoughtful, and balanced in identifying both strengths and weaknesses of the study. Provides clear examples (avoids generalizations) to support answers and uses references appropriately. Justifies criticisms and offers rational for how a limitation will affect the quality of the study, and suggests an alternative approach that could have eliminated the problem. Suggestions are practical.

Uses exceptional spelling, grammar, and use of APA guidelines.

(B) Very Good

Well organized and easy to read. Answers critique questions in a thorough manner.

Demonstrates clear understanding of the article.

Critique is objective and thorough in identifying both strengths and weaknesses of the study. Provides examples to support answers using references appropriately. Few generalizations are made in the paper. Justifies criticisms and offers rational for how a limitation will affect the quality of the study, with some suggestions on using an alternative approach. Able to give general information as to how the alternative approach would have eliminated the problem. Suggestions are practical.

Excellent use of APA guidelines with minimal mistakes. Minimal spelling or grammatical errors. Paper is well referenced and detailed with minimal errors.

(C) Satisfactory

Generally well organized with some difficulty in the flow of ideas. Answers questions superficially or not concisely.

General understanding of the article with some confusion noted.

Critique is mostly objective with some generalizations made. Missing some information related to the specific components of the critique. Information identifies some strengths and weakness to the study and provides a few examples to support answers from the study. Justification of criticism given but somewhat superficial with rationale as to how the limitation affects the quality of the study. Suggestions of alternatives and how the approach would have eliminated the problem are vague and may not be practical.

Satisfactory use of APA with some corrections needed to format. Occasional spelling and grammatical errors. Able to provide referencing although not all information included.

(D) Minimal Pass

Poor organization and difficult to read. Questions answered superficially and are not complete.

Lack of understanding of the study evident. Discussion of article is confusing and vague.

Critique is not objective with many generalizations made. Missing key information related to the components of the critique. Identifies minimal strengths and weakness to the study and provides minimal examples to support answers with little or no quotes from the study. No justification of criticism given with little rational as to how limitations will affect the quality of the study. No suggestions of alternatives and how the approach would have eliminated the problem used.

Frequent spelling and grammatical errors with little use of APA format used. Poor or inadequate referencing used.

(F) Fail

Lack of organization evident. No structure or format to paper. Questions are not answered.

No understanding of the study evident in paper.

Critique is incomplete and missing key information. Little or no understanding evident related to the strengths and weaknesses of the study with no examples to support answers.

Many spelling and grammatical errors with little or no use of APA format.

Paper is plagiarized, lack of referencing.