



FACULTY OF NURSING

Nursing 621

Health Research Methods: Quantitative Designs

Fall 2010

Dr. Cynthia Mannion, PhD, RN

Thursday, 1600 -1900 hrs.

Room: PF2253

University of Calgary, Faculty of Nursing

Nursing 621 Health Research Methods: Quantitative Designs

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Course Description

The purpose of this course is to provide students with the knowledge they need to engage in evidence-based practice. The Centre for Evidence Based Medicine describes *evidence-based nursing* as involving the following six steps:

- Formulating an answerable question to address a specific patient problem or situation.
- Systematically searching for research evidence that could be used to answer the question.
- Appraising the validity, relevance and applicability of the research evidence.
- Integrating the research evidence with other information that might influence the management of the patient's problems (e.g., clinical expertise, patient preference for alternative forms of care, and available resources).
- Implementing the evidence-based practice decision.
- Evaluating the outcome of the decision.

The same knowledge will prepare students to design quantitative research studies. This knowledge, in conjunction with knowledge gained in other courses in the program, will prepare students to conduct quantitative investigations of issues important to the nursing community.

Course Objectives

Course Topics:

To engage in evidence based nursing and to design quantitative studies, students must develop a functional literacy in eight topics: 1) developing a research proposal, 2) reviewing literature, 3) designing research studies, 3) sampling participants, 4) collecting data, 5) inspecting data with a statistical analysis program, 6) understanding levels of measurement, 7) treating participants ethically, and 8) disseminating results. The objectives of the course are, for each of these eight topics, that students will be able to operate at the levels of remembering, understanding, applying, analyzing, evaluating, and creating.

With successful completion of the course, the student will be able to

1. Understand evidence based practice.
2. Critically analyze the research literature and identify gaps in the knowledge.
3. Acquire skills to access and to read, evaluate research reports;
4. Identify commonly used quantitative research study designs and methods;
5. Acquire basic skills of statistical analysis and interpretation using a statistical software package (SPSS) for data analysis and presentation;
6. Develop a scholarly research proposal that is written in a systematic, clear, and concise format;
7. Consider the ethics of clinical nursing research;
8. Reflect on current issues in nursing and health care and understand the principles of evidence-based-practice.

Class Format

Students will learn in a small group setting that provides a supportive environment for active and collaborative learning, faculty to student contact, and a high level of academic challenge.

The format for this course is interactive seminar. *Students are expected to come prepared with questions based on the pre-class readings.* The emphasis will be on the research and clinical applications of the topic under discussion. *All students are expected to participate in class discussions.* Students are encouraged to reflect on the relevance of the topic under discussion as it relates to their area of practice/population of focus.

Course Requirements

Students are responsible for the core components of the course. In addition, students are expected to apply their learning of clinical research to practice throughout their program of study and beyond. Learning activities relevant to the course include, but are not limited to, a review of the research literature, participation in seminars, critical thinking and reflection, consultation with resource persons, beginning data entry/analysis and writing a quantitative research proposal.

PLEASE NOTE: All students in N621 are required to have a University of Calgary email account and use this account for all communication in the course. A U of Calgary email account can be obtained on-line form: <https://www.acs.ucalgary.ca/servlet/itutil?process=WebRegister>

| Course Assignments | Weighting | Due date All assignments are due by 4 pm on the due dates |
|---------------------------------|-----------|---|
| Assignment 1: Research Question | 10% | Thursday September 23 |
| Article Critique | 15% | November 1 |
| Article Critique Presentation | 10% | October 28, November 18 |
| Ethics Assignment | 15% | Thursday November 4 |
| Research Proposal Presentation | 15% | December 2 and 9 |
| Research Proposal | 35% | Monday December 2 |

Please note: These assignments have the potential to give you a head start in your thesis program or any work related project in which you may be involved.

Assignment: Research Question 10%

Please see hand out on Assignment 1. Due Sept. 23. The questions research question is the objective of the study. From a general concern it must be narrowed down to a concrete, researchable issue. The question must pass the "so what" test; contribute to the stat of knowledge. Use *FINER* to create your question- Feasible, Interesting, Novel, Ethical and Relevant.

Assignment: SPSS Tutorial

Due Date: Thursday September 16 and Monday 28, 2008

Description: Students will participate in a tutorial that will introduce them to the predominant software program for quantitative data analysis.

The Proposal

Points to Consider for the Literature Review:

- Identify the **research** that has been conducted concerning a clinical area of interest to you
- Describe the clinical problem which is the focus for your review and its relevance to nursing
- Describe the time span for this review and the databases that were searched
- State the key words used in your search
- Summarize and critically review the articles from published **research** (both nursing and non-nursing sources).
- In your review explain to the reader the:
 - Purpose, research method, sample size, where the research was done, how the data were collected
 - Variables that were studied, the analysis
 - Theoretical frameworks used (if appropriate)
 - Strengths and limitations of the study
 - Outcomes of the studies

Rubric for Evaluating the Literature Review

| Elements | Does not meet requirements (\leq B-) | Meets requirements (B to B+) | Exceeds requirements (A- to A+) |
|---------------------------|---|--|--|
| Clinical area of interest | Clinical area of interest, significance to nursing and importance is difficult to identify. | Clearly describes clinical area of interest that is focus for paper and relevance to nursing. Significance is clear. | Clinical area of interest, relevance to nursing & significance are clearly identifiable, sophisticated & insightful. An A+ paper is highly original, opening new arenas of discussion. |
| Search Strategy | Difficult to decipher search strategy. Relies heavily on textbooks or website references. | Reports the search strategy used for detecting relevant trials, including time span and databases. Use of databases with best sources of trials. | Sufficient detail provided to replicate the search strategy. Undertakes a comprehensive and precise (e.g., limits searches, filters, etc.) search of health-related electronic databases. |
| Critical Review Analysis | Literature review is illogical. Approach to critiquing, interpreting, and analyzing relevant research literature is not synthesized (e.g., discusses each study separately). Poorly integrated quotes or overuse of quotes. Unclear how author is making sense of the literature. | Background assumptions and organizing framework are consistent with selected quantitative research method. Demonstrates ability to critique, compare and contrast current literature as a collective. Quotes are well-integrated and explored. | Clearly demonstrates ability to critique materials in a manner that illustrates fluid application of quantitative research method. Draws upon cutting-edge, peer-reviewed literature in specific topic areas, with excellent integration of quoted material. Explicitly links literature to personal experience and proposed research question. An A+ paper pushes the level of inquiry well-beyond readings and class discussion. |
| Argumentation | Simplistic view of topic. Little or no effort to grasp alternative views. | Counter-arguments are acknowledged, though perhaps not fully addressed. | Anticipates and defuses/responds to counter-arguments. Novel connections. |
| Conclusion | There is no clear conclusion or response to issue posed in the problem statement. | The clinical statement and its significance are restated, emphasizing the discovered importance, answers or possibilities explored within the review of the literature. | Clearly proposes answers to questions such as "so what?" or "what are the implications for nursing?". Poses questions that push readers about new understandings of the topic. |
| Literary skill | Writing style is bland & factual, and disconnected. Numerous errors in | Sentence structure, grammar, punctuation & diction are | Writes in a fluent manner. Sentence structure, grammar, |

| | | | |
|-------|--|---|---|
| | sentence structure, grammar, punctuation & diction. Poor documentation of sources. | strong with occasional minor errors. | punctuation & diction are excellent with negligible errors. |
| Style | Numerous errors in APA format and citations. | Follows APA 5 th ed format with few errors | Meticulous APA format consistently followed. |

Assignment: Ethics Thursday November 4 15%

The Ethics Application must be completed with your proposal. Ensuring all pertinent parts are completed for the particular study including budget,

Assignment: Research Proposal – Quantitative research Mon. Dec 2 35%

Given your critical review of the existing research that has been conducted in your area of advanced practice (assignment #1), identify the gaps in current knowledge and identify a clinical research problem that requires to be researched. Provide a clear and systematic proposal of the research that you wish to conduct that would address the clinical problem you have identified.

Due Date: December 2, 2010

Format: Must be completed individually.

Number of Pages: Maximum of 15 pages excluding references, title page, table of contents (double spaced).

Style: APA format (5th or 6th edition).

Grading: Grading will be a letter grade.

Points to consider: NOTE – You must propose a quantitative research method

- From your review of the literature identify the gaps in current knowledge and formulate a research proposal.
- Does your review of the literature logically lead to your proposed research?
- Have you identified a gap in the knowledge base?
- Formulate research questions/hypotheses as appropriate
- What theoretical framework (if appropriate) would fit for the proposed research?
- Justify the quantitative design you wish to use
- What contribution is your proposed research making to *evidence based practice*?
- What is the *utility* of your proposed research?
- Clearly describe the proposed design, sampling, and data collection methods which will be used in your research.
- Address the ethical considerations that relate to the proposed research
- Write in a systematic, clear and logical way

Rubric for Evaluating Assignment The Research Proposal

| Elements | Does not meet requirements (\leq B-) | Meets requirements (B to B+) | Exceeds requirements (A- to A+) |
|---|--|---|--|
| Abstract | The abstract is disjointed, detached, and wordy | A structured abstract is provided that is brief, captures the essence of the proposal; however, it is not compelling. | A brief synopsis of the proposed project is presented to help establish a frame of reference for the reader. A structured abstract is provided that is succinct, creates a positive impression and draws the reader to review the project. |
| Problem and Significance, Objectives, and Research Questions/Hypotheses | Clinical area of interest, clinical problem, significance to discipline and its importance is difficult to identify, stated in an unclear manner or is a restatement of an obvious issue. It is difficult to determine the researcher's goal, the relationships being explored, the nature of the population of interest, and the potential contribution the research will make. Oversimplification of a complex problem or the problem is not measurable. | Clearly describes the clinical area of interest, clinical problem (key research questions and variables to be examined) which is the focus for the paper, and its relevance to nursing. Significance of the topic is clear. Problem shows potential for adding information to present body of knowledge and/or theory. | Clinical area of interest, clinical problem, its relevance to the discipline are clearly identifiable, sophisticated and insightful, pushing beyond stereotyped questions. Scope and importance are identified early in proposal. Objectives, questions/hypotheses are precisely stated and identify the key variables, the relationship between them and the population under study. Problem as stated demonstrates potential for adding new information to present body of knowledge/theory. An A+ proposal is highly original, opening new areas of discussion related to selected topic. |
| Background (Critical Review of Literature) | Literature review is illogical. Approach to critiquing, interpreting, and analyzing relevant research literature is not synthesized (e.g., discusses each study separately). Poorly integrated quotes or overuse of quotes. Points or statements often lack supporting evidence. Unclear how author is making sense of the literature. | Background assumptions and organizing framework are consistent with selected quantitative research method. Demonstrates ability to critique, compare and contrast current literature as a collective. Effectively incorporates examples from a reasonable cross-section of current literature to support key points. Quotes are well-integrated and explored. | Clearly demonstrates ability to critique materials in a manner that illustrates fluid application of quantitative research method. Draws upon cutting-edge, peer-reviewed literature in specific topic areas, with excellent integration of quoted material. Explicitly links literature to personal experience and proposed research question. An A+ paper pushes the level of inquiry well-beyond readings and class discussion. |

| | | | |
|-------------------|--|---|--|
| Methods | Methodological dimensions are not attended to or some are missing. Problem, objective and procedures do not relate to each other. Overall design ill-conceived or feasibility is questionable. Does not demonstrated application of selected methodological decisions. Inadequate information is provided or the information is too unclear to permit careful evaluation. Statistical tests for data analysis are unsuitable. Does not attend to detail. | The relationship between problem, objectives and procedures is clear, each one logically follows from the other; however, needs some minor clarification and/or additions. Methodological dimensions are attended to in a comprehensive manner; however, such decisions are not addressed in a systematic, logical and critical manner. Generally, adequate information is provided on sampling, controls, data collection, and analysis but requires additional information for evaluation. Statistical tests for data analysis are clearly defined and realistic. Fails to consistently attend to detail. | The relationship between the problem, objectives and procedures is clearly evident. Adequate information is provided on sampling, controls, data collection, and analysis. Statistical tests for data analysis are clearly articulated and realistic. Systematic, logical and attends to detail. Clearly demonstrates the fluid application of the selected methodological decision (e.g. design, ample, data collection and analysis) in quantitative research tradition. |
| Argumentation | Simplistic view of topic. Little or no effort to grasp alternative views. | Counter-arguments are acknowledged, though perhaps not fully addressed. | Anticipates and defuses/responds to counter-arguments that may arise in implementation of proposal. |
| Ethical Dimension | Little or no consideration is given to the rights of human participants, consent process, etc. Minimal appreciation for the impact on the scientific merit of the study and participants' well-being. | Ethical dimensions are acknowledged, though perhaps addressed or explored effectively. | Demonstrates conscious decision –making to adhere to or to violate ethical principles in the proposed conduct of the study. Provides sound rationale when ethical principles are violated. Demonstrates analytic depth in articulation of ethical decisions and the impact of these decisions on scientific merit and participants' well-being. |
| Literary skill | Writing style is bland & factual, and disconnected. Numerous errors in sentence structure, grammar, punctuation & diction. Poor documentation of sources. | Sentence structure, grammar, punctuation & diction are strong with occasional minor errors. | Writes in a fluent manner. Sentence structure, grammar, punctuation & diction are excellent with negligible errors. |
| Style | Numerous errors in APA formatting and citations. | Follows APA 5 th ed format with few errors | Meticulous APA format consistently followed. |

Article Critique Group Presentations**25%**

This assignment involves an individual presentation of a research article that interests you. Use the criteria provided to you in class to guide the critique. Discuss how the investigator(s) satisfied each criterion. You may cite relevant passages in the article (provide page #). Provide examples and rationale for your assessment/critique.

Due date: December 2 and 9, 2010.

Format: Group presentation

Rubric for Evaluating Assignment Critique of Research Article

| Elements | Does not meet requirements (\leq B-) | Meets requirements (B to B+) | Exceeds requirements (A- to A+) |
|----------------------------------|--|---|---|
| Critique of Research Article | A yes or no response is presented for each critique criterion. No example and/or rationale are presented in the response(s). The relationship between the article and the course intents is unclear. | A surface scholarly discussion occurs with the criteria provided. Periodically examples and/or rationale are presented in the response(s). Presenter opinion and analysis adds to the meaning of the article for the class. | Leaves the discussion with new understanding of the level of evidence and strength of recommendation from the research articles. Student's critique of the article is comprehensive. Additional relevant content is added to spur class interest and understanding. The A+ presentation leaves us with new ideas on the research topic. |
| Facilitation of Group Discussion | Presentation does not include opportunities for active participation by classmates. Questions that are posed are too simplistic to effectively engage classmates. | Poses questions that effectively create openings for participation by all present. Responsively incorporates & addresses ideas offered by classmates to extend and embellish the discussion. | Opinion and analysis are offered in a way that fosters group discussion and engages other perspectives. Poses thought-provoking questions that lead to deep scholarly discussion of the topic & push inquiry well beyond the reading. The A+ facilitation engages participants well beyond their expectations of the topic. |
| Voice & vivacity | Voice quality is too loud or too quiet. Student simply reads from notes or slides. | Voice quality is good and voice modulates to create interest. | Voice and presence are interesting and dynamic! |

Student Academic Conduct:

Students are expected to comply with the academic regulations specified in the University of Calgary Calendar. Intellectual honesty is expected at all times. A single offence of cheating, plagiarism, or other academic misconduct, on term work, text, or final examinations, etc., may lead to disciplinary probation or a student's suspension or expulsion from the Faculty by the Dean, if it is determined that the offence warrants such action (Academic Regulations, University of Calgary Calendar, 2008-2009). Confidentiality of patient/client information must be ensured. Discussion of clinical practice should be restricted to the students, their professors and their clinical preceptors.

Grading System (Adopted by Graduate Program Committee – August 2002)

| If the grade on your assignment is: | The percentage will be taken from: | If the total for all assignments is: | Your final grade will be: | And the GPA for the course will be: |
|-------------------------------------|------------------------------------|--------------------------------------|---------------------------|--|
| A+ | 4.0 | 3.95 - 4.00 | A+ | 4.0 - Outstanding |
| A | 4.0 | 3.85 – 3.94 | A | 4.0 - Excellent – superior performance showing comprehensive understanding of the subject matter |
| A- | 3.7 | 3.50 – 3.84 | A- | 3.7 - Very good performance |
| B+ | 3.3 | 3.15 – 3.49 | B+ | 3.3 - Good performance |
| B | 3.0 | 2.85 – 3.14 | B | 3.0 - Satisfactory performance Note: The grade point value (3.0) associated with this grade is the minimum acceptable average that a graduate student must maintain throughout the program as computed at the end of each year of the program |
| B- | 2.7 | 2.50 – 2.84 | B- | 2.7 - Minimum pass for students in the Faculty of Graduate Studies Note: Students who accumulate two grades of B- or lower may be required to withdraw from program by the Faculty of Graduate Studies, regardless of their grade point average |
| C+ | 2.3 | 2.15 – 2.49 | C+ | 2.3 - Unsatisfactory Note: All grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of graduate studies course requirements |
| C | 2.0 | 1.85 – 2.14 | C | 2.0 |
| C- | 1.7 | 1.50 – 1.84 | C- | 1.7 |
| D+ | 1.3 | 1.15 – 1.49 | D+ | 1.3 |
| D | 1.0 | 0.50 – 1.14 | D | 1.0 |
| F | 0 | 0.00 – 0.49 | F | 0 |

FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY

Information (such as a phone number, addresses, tracking sites of practica, etc.) that you may be asked to provide is collected under the authority of the Universities/Colleges act and Freedom of Information and Protection of Privacy Act Section 32 (c). It will be used to for practicum placement and for contact purposes. Your personal information is protected by Alberta's Freedom of Information and Protection and Privacy Act and can be reviewed on request. If you have any questions about the collection or use of this information, contact the Graduate Office, at 220-6241.