

Nursing 621
Health Research Methods: Quantitative Designs
Winter 2011

Liam Rourke, PhD

Wednesday 13:00 -16:00
PF2253

Contact Information

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Course Description

The purpose of this course is to prepare students to design quantitative research studies and engage in evidence-based practice. The knowledge and skills for these endeavors are summarized by the Centre for Evidence Based Medicine, and they include:

- Formulating an answerable question to a specific problem
- Systematically producing or reviewing evidence to answer the question
- Ensuring the validity, relevance, and applicability of research evidence
- Integrating research evidence with other information that might influence the design of a research study or patient treatment
- Disseminating research results

Course Objectives

To engage in these types of activities, students must develop their knowledge of nine topics:

1. Formulating research questions
2. Reviewing, critiquing, and summarizing scholarly literature
3. Selecting research designs
4. Delineating populations and sampling participants
5. Collecting data
6. Analyzing and interpreting data
7. Using data management software
8. Treating participants ethically
9. Disseminating results

Across these topics, students should be able to operate at the levels of remembering, understanding, applying, analyzing, evaluating, and creating.

Class Format

Students will learn in a group setting that supports faculty-to-student contact, active and collaborative learning, and a high level of academic challenge. Learning activities will include lectures, small-group activities, student presentations, labs, and written assignments. Often, our agenda will follow this pattern:

1. 15 minutes, group critique of a research article.
2. 15 minutes, pre-assessment of existing knowledge of session topics.
3. 40 minutes of lecture.
4. 40 minutes of group work.
5. 40 minutes of group presentations to the class.
6. 10 minutes post-assessment for knowledge of session topics.

Course Requirements

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

Course Assignments	Weighting	Due date
Research Question	5%	February 2
Literature Review Outline	5%	February 23
SPSS Tutorial	15%	March 18
Literature Review	25%	March 2
Methods Section	20%	March 25
Ethics Certificate	10%	March 31
Weekly Quizzes	20%	

Assignment # 1: Formulation of research question

Properties of a good research question	≤ B-	B to B+	A- to A+
Interrogative			
Focuses attention on the kinds of data that would have to be collected to provide an answer			
Focuses attention on the kind of research design to be employed	The research question has three or fewer of the properties of a good question.	The research question has four or five of the properties of a good question.	The research question has all of the properties of a good research question and is timely and relevant.
Identifies the key variables in the study			
Identifies the relationships between the variables in the study			
Suggests quantification			

Assignment 2: SPSS Tutorial

- Description: Students will participate in a tutorial that will introduce them to the predominant

software program for quantitative data analysis.

Assignment 3: Literature Review

- Provide a critical review of the literature surrounding your research question.
- Number of Pages: Maximum 15, 12-point font, New Times Roman, pages excluding references (double spaced).
- Style: APA format
- *Points to Consider:*
 - 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 Assignment #2 - 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	Background assumptions and organizing framework are consistent with selected quantitative research method. Demonstrates ability to	Clearly demonstrates ability to critique materials in a manner that illustrates fluid application of quantitative research method.

	separately). Poorly integrated quotes or overuse of quotes. Unclear how author is making sense of the literature.	critique, compare and contrast current literature as a collective. Quotes are well-integrated and explored.	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. 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 5th ed format with few errors	Meticulous APA format consistently followed.

4: Methods Section

- Building on your research question and the relevant literature you have reviewed, design a study to field the question. A *Methods* section of a research article or research proposal includes a complete explanation of the a) research design (e.g., experimental, quasi-experimental, descriptive, etc); b) population and the sampling procedure, c) data collection techniques, and d) data analysis techniques.
- Number of Pages: Maximum of 10 pages excluding references (double spaced)
- Style: APA format (6th edition)
- *Points to consider*: NOTE – You must propose a quantitative research method
 - Does your review of the literature logically lead to your proposed research?
 - Formulate research questions/hypotheses as appropriate
 - Clearly describe the proposed design, sampling, and data collection methods which will be

used in your research.

- Write in a systematic, clear and logical way

Rubric for Evaluating Assignment #4 – Research Methods

Element	Does not meet requirements (≤ B-)	Meets requirements (B to B+)	Exceeds requirements (A- to A+)
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 demonstrate 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.
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 5th ed format with few errors	Meticulous APA format consistently followed.

Assignment # 5: Ethics certificate

Complete the Introductory Tutorial for the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS).

<http://www.pre.ethics.gc.ca/english/tutorial/welcome.cfm>

Submit certificate of completion.

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	- 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	- 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-	- 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+	- 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.