



Nursing 3340A-650: Understanding and Using Research: Analyzing Data Fall 2024

Instructor: Dr. Stephen Lin

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Delivery Method: Online Asynchronous

Office: Nursing Building, Room 3315

Office Hours: By Appointment or via Zoom Appointment

Zoom link: <https://westernuniversity.zoom.us/j/3825666064>

Teaching Assistants and Assigned Groups

Teaching Assistants	Email	Groups
Alice Nyirazigama	anyirazi@uwo.ca	Group 1- 15
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Mehtab Qutbuddin Jaffer	mjaffer9@uwo.ca	Group 63 - 79

How we will work together in this course:

This course will be delivered fully online. There are no live lectures, but you will complete weekly self-directed learning activities (i.e. readings, watch videos, etc.) that will be posted on the course website through Brightspace. Weekly learning materials, such as lecture slides and recorded lectures, will be posted by 11:59pm, every Monday. **All students in this course must familiarize themselves with the course site. All the learning materials can be found under the content tab.**

N3340: Ways of Knowing: Data Analysis

Calendar Description: This course will introduce students to basic concepts and techniques used to analyze both quantitative and qualitative data. This will include descriptive and inferential statistics and common methods for qualitative analysis and interpretation.

Expanded Description: The ability to interpret data analysis, critically analyze research results and implications enables nurses to engage in evidence informed practice. The course is an extension of the content covered in the research course (N2250) and will provide you with a basic foundation in the methods of quantitative and qualitative data analysis commonly encountered in published research.

In this course, you will focus on interpreting data output and study findings of published research articles that will be presented in the lectures and covered in the group assignments. Although this is not a course to equip you with the knowledge to independently perform sophisticated analyses of complex healthcare datasets, the course will include some basic analytic methods as well as underlying assumptions. While the main emphasis will be on developing the ability to critically interpret published research articles, the course will also use data analysis techniques in lectures, in class activities, assignments, tests, and the final exam.

Pre-requisite: N2250

Year 3 Goals:

- 1) Practice nursing and justify clinical judgments using beginning research skills, evidence-based practice, ethical principles, multiple ways of knowing, and critical and creative thinking.
- 2) Implement reflective critical thinking strategies to enhance self-understanding, foster personal knowing, and refine one's nursing practice.
- 3) Practice as a member of an interprofessional team to provide culturally sensitive client-centered care in a variety of settings.
- 4) Analyze, organize, and reconstruct information to effectively communicate to others and inform practice.
- 5) Advocate with others for public policy that will address health and social justice locally, nationally and internationally.
- 6) Propose changes to the health care and social systems that respond to societal needs, and generate possibilities for the nursing profession in accordance with the proposed changes
- 7) Practice competently and ethically in accordance with professional requirements.

Course Goals (Reflect Year 3 goals #1, 2, 3, 4, & 7):

- 1) To understand and describe the research processes of quantitative and qualitative data analysis
- 2) To identify and determine the appropriateness of specific qualitative analysis methods and quantitative analysis methods reported in published research
- 3) To assess the rigour of quantitative and qualitative data analysis in published research
- 4) To understand the results of published qualitative and quantitative studies.

Competencies for entry-level Registered Nurse practice (CNO, 2020) addressed in the course:

<https://www.cno.org/globalassets/docs/reg/41037-entry-to-practice-competencies-2020.pdf>

Clinician: 1.1, 1.10, 1.11, 1.13 1.2, 1.5, 1.6
Professional: 2.1
Communicator: 3.4
Collaborator: 4.3
Leader: 6.5, 6.9, 6.10
Scholar: 9.3

National Interprofessional Competencies (CIHC, 2010) addressed in the course:

- Interprofessional communication
- Role clarification
- Team functioning

Nursing Informatics Competencies (CASN, 2012) addressed in the course:

- Uses relevant information and knowledge to support the delivery of evidence-informed patient care
- Uses ICTs in accordance with professional and regulatory standards and workplace policies
- Uses information and communication technologies in the delivery of patient/client care

How this course will contribute to your development as a professional nurse:

Many of you may question why nurses at the baccalaureate level need to understand the basics of data analysis. This is an excellent question and is partially addressed by the recognition of nursing as a health sciences profession. Inherent in many definitions of a profession is the notion that professionals fulfill a distinctive function in society and that the function that is fulfilled is based on evidence that has a foundation in scientific inquiry. The health care system is in a constant state of evolution, and inquiry based on sound data analysis can help nursing to engage in evidence-informed decision making to enhance nursing practice, promote quality patient care and improve health. As evidence informed practices become the norm in health care, the number of nurses who are conducting and using research in practice will continue to increase.

As a consumer of research you will need to understand how research results are generated in order to critically appraise their implications for clinical practice. As well, the same analytic approaches are often used to evaluate healthcare programs and projects to meet accreditation and other standards. Although you may not conduct full research studies at the baccalaureate level of education, you will likely participate in program and service evaluations as part of practice. This course will prepare you for these various roles in practice.

How this course will contribute to your development as an interprofessional team member:

This course will provide students with the basis from which to expand conceptualizations related to how knowledge is generated within the healthcare sector. Subsequently, other healthcare team members' contributions in research process will be explored from an interprofessional perspective. Insights will be provided as to how nursing can become further involved in inter-professional research through the use of various exemplar case studies, analysis strategies, and other learning material related to knowledge translation for professional practice.

Recommended (not required) course textbooks:

1. Heavey, E. (2024). *Statistics for Nursing: A Practical Approach (4th ed.)*. Jones and Bartlett Learning. ISBN: 9781284254907

To purchase the textbook, please click the following link:

https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2024A&courses%5B0%5D=650_UW/NUR3340A

2. Additional readings can be downloaded from Brightspace as well as from your N2250 text: Singh, M., Thirsk, L., Stahlke, S., Venkatesaperumal, R., LoBiondo-Wood, G., & Haber, J. (2022). *LoBiondo-Wood and Haber's Nursing Research in Canada: Methods, Critical Appraisal, and Utilization (5th ed.)*. Toronto, ON: Elsevier Mosby.

Course Schedule and Readings

Week	Date	Topic/Assignment	Assigned Readings
1	Sept 5-8	Course Introduction Group Sign up on Brightspace	Gather the readings
2	Sept 9-15	Introduction to Quantitative and Qualitative Analysis	Review Singh et al. (2022) - Ch. 8 & 10
3	Sept 16-22	Qualitative Research Methods and Data	Patton & Cochran (2002) Hurlock-Chorostecki et al. (2015)
4	Sept 23-29	Preparing Qualitative Data: Coding	Sandelowski (1995) Seers (2012)
5	Sept 30-Oct 6	Content Analysis & Discourse analysis	Alexander (2003) McCloskey (2008)

6	Oct 7-13	Test #1 (Available from Oct 10-11) Qualitative Rigour	Noble & Smith (2015)
7	Oct 14-20	Reading Week	None
8	Oct 21-27	Foundations of Quantitative Data Analysis	Heavey – Ch. 2
9	Oct 28-Nov 3	Common Quantitative Data Analysis Qualitative Data Analysis Paper Due by Friday, October 25 by 5:00pm	Heavey – Ch. 3 & 6
10	Nov 4-10	Comparing Two Groups	Heavey – Ch. 8 & 9
11	Nov 11-17	Test #2 (Available from Nov 14-15) Making Comparisons (Three or More Groups)	Heavey – Ch. 10
12	Nov 18-24	Measuring Association: Elaboration Model	Singleton & Straits (2010)
13	Nov 25-Dec 1	Correlation and Regression Analysis	Heavey – Ch. 11 & 12
14	Dec 2-6	Course Review Quantitative Data Analysis Paper Due by Friday, December 6 by 5:00pm	None

Please note that this course will cover the following statistics which can be used as statistics pre-requisite:

- Frequency distributions and skewness
- Measures of central tendency: mean, median, mode
- Levels of measurements: nominal, ordinal, interval/ratio
- Measures of variation: Standard deviation, standard score, standard error
- Probability, normal curve
- Sampling, confidence intervals
- Tests of significance: Null hypothesis: t-test, one-tail/two tail tests
- Analysis for proportions and categories (e.g., Chi-square)
- Analyses for group means (e.g., t-tests, analysis of variance)
- Correlation
- Simple linear regression

Policies

All policies related to assignments are in the Undergraduate BScN Programs Manual on the Western web site at owl.uwo.ca and on the Fanshawe College web site in the Program manual located in the Virtual Home Room at www.fanshaweonline.ca

Statement on Plagiarism

Student work is expected to be original. Plagiarism is a serious academic offence and could lead to your expulsion from the nursing program. You are plagiarizing if you insert a phrase, sentence or paragraph taken directly from another author without acknowledging that the work belongs to him/her. Similarly, you are plagiarizing if you paraphrase or summarize another author's ideas without acknowledging that the ideas belong to someone else. All papers must be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University and the College for the detection of plagiarism. All papers submitted will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University, Fanshawe College, and Turnitin.com (www.turnitin.com). For further information, please see the BScN Program Manual for the policy on plagiarism. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following web site:

www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Opportunities to Demonstrate Learning

1. Test #1 (October 10-11) and Test #2 (November 14-15): 15% each

Students will write two tests: in week 6 (covering content from weeks 2,3,4,5) and week 11 (covering content from weeks 6,8,9,10). Each test provides the student with an opportunity to review course content and demonstrate application of course concepts. These tests are helpful for preparation for the final exam.

2. Two Group Assignment: 15% x 2 = 30% of final grade

- Qualitative Data Analysis Due by Friday October 25 by 5:00pm

- Quantitative Data Analysis Due by Monday, December 6 by 5:00pm

Students will work in groups of four to review two research articles. As a group, students will critically appraise one qualitative study and one quantitative study focusing specifically on the analysis. Please see assignment and rubric on Brightspace.

3. Final Exam (40%) – to be scheduled during the exam period by the Registrar

Final Exam: During the exam period

Summary of Opportunities to Demonstrate Learning

EVALUATION	COURSE GOAL(S) ADDRESSED	VALUE	DUE DATE
Two Tests	<ol style="list-style-type: none"> 1. To understand and describe the research processes of quantitative and qualitative data analysis. 2. To identify and determine the appropriateness of specific qualitative analysis methods (e.g. coding) and quantitative analysis methods (e.g. descriptive and inferential statistics) reported in published studies. 3. To assess the rigor of quantitative and qualitative analysis of published research. 4. To understand the results of published studies in terms of qualitative and quantitative data analysis 	15% x 2 (30%)	Test 1: October 10-11 Test 2: November 14-15
Group Data Analysis Assignment	<ol style="list-style-type: none"> 1. To understand and describe the research processes of quantitative and qualitative data analysis. 2. To identify and determine the appropriateness of specific qualitative analysis methods (e.g. coding) and quantitative analysis methods (e.g. descriptive and inferential statistics) reported in published studies. 3. To assess the rigour of quantitative and qualitative analysis of published research. 4. To understand the results of published studies in terms of qualitative and quantitative data analysis. 	15% x 2 (30%)	Qualitative: October 25 by 5:00pm Quantitative: December 6 by 5:00pm
Final Exam	<ol style="list-style-type: none"> 1. To understand and describe the research processes of quantitative and qualitative data analysis. 2. To identify and determine the appropriateness of specific qualitative analysis methods (e.g. coding) and quantitative analysis methods (e.g. descriptive and inferential statistics) reported in published studies. 3. To assess the rigor of quantitative and qualitative analysis of published research. 4. To understand the results of published studies in terms of qualitative and quantitative data analysis. 	40%	TBA by Registrar

Policies

All policies related to assignments are in the Undergraduate BScN Programs Manual on the [Undergraduate Student Information site](#) .

Assignments and Exams

Please refer to the Undergraduate BScN Programs Manual for UWO academic guidelines for penalties for late assignments, re-grading of assignments, and the protocol for missed mid-term or final exams. The Undergraduate BScN Programs Manual is found at [School of Nursing Policies](#)

Support Services

There are various support services around campus and these include, but are not limited to:

1. Academic Support and Engagement - <http://academicsupport.uwo.ca>
2. Wellness and Well-being - <https://www.uwo.ca/health/>
3. Registrar's Office -- <http://www.registrar.uwo.ca/>
4. Ombuds Office -- <http://www.uwo.ca/ombuds/>

The websites for Registrarial Services (<http://www.registrar.uwo.ca>), and the same for affiliated university colleges when appropriate, and any appropriate Student Support Services (including the services provided by the USC listed here: <http://westernusc.ca/services/>) and the Student Development Services, should be provided for easy access.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://www.uwo.ca/health/>) for a complete list of options about how to obtain help.

Statement on Gender-Based and Sexual Violence

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

Student Code of Conduct

The purpose of the Code of Student Conduct is to define the general standard of conduct expected of students registered at Western University, provide examples of behaviour that constitutes a breach of this standard of conduct, provide examples of sanctions that may be imposed and set out the disciplinary procedures that the University will follow. For more information, visit <https://www.uwo.ca/univsec/pdf/board/code.pdf>

Absence from Course Commitments

Students must familiarize themselves with the Policy on [Academic Consideration – Undergraduate Students in First Entry Programs](#). Students missing course work for medical, compassionate, or extenuating circumstances can request academic consideration by completing a request at the central academic consideration portal. Students are permitted one academic consideration request per course per term **without** supporting documentation. Note that supporting documentation is **always** required for academic consideration requests for examinations scheduled by the office of the registrar (e.g., December and April exams) and for practical laboratory and performance tests (typically scheduled during the last week of the term).

Students should also note that the instructor may **designate** one assessment per course per term that requires supporting documentation. This designated assessment is described elsewhere in this document. Academic consideration requests may be denied when flexibility in assessment has already been included. Examples of flexibility in assessment include when there are assessments not required for calculation of the final grade (e.g. 8 out of 10 quizzes), when there is flexibility in the submission timeframe (e.g. 72 hour no late penalty period), or when timed assessments (e.g., quizzes) are available over an extended period of time (e.g., when you are given a 72 hour time period to start – and finish – the assessment).

Please note that any academic considerations granted in this course will be determined by the instructor of this course, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course syllabus. Supporting documentation for academic considerations for absences due to illness should use the [Student Medical Certificate](#) or, where that is not possible, equivalent documentation by a health care practitioner.

Accommodation for Religious Holidays

Students should review the policy for [Accommodation for Religious Holidays](#). Where a student will be unable to write examinations and term tests due to a conflicting religious holiday, they should inform their instructors as soon as possible but not later than two weeks prior to writing the examination/term test. In the case of conflict with a midterm test, students should inform their instructor as soon as possible but not later than one week prior to the midterm.

Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examination dates. The Faculty of Health Sciences has set School-specific dates for these Special Examinations. Please speak with your instructor about the date on which the Special Examination for this course will be held.

Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Plagiarism

Student work is expected to be original. Plagiarism is a serious academic offence and could lead to a zero on the assignment in question, a zero in this course, or your expulsion from the university. You are plagiarizing if you insert a phrase, sentence or paragraph taken directly from another author without acknowledging that the work belongs to him/her. Similarly, you are plagiarizing if you paraphrase or summarize another author's ideas without acknowledging that the ideas belong to someone else. All papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and Turnitin.com (www.turnitin.com).

Use of Artificial Intelligence for the Completion of Course Work

Within this course, you may only use artificial intelligence tools (e.g., "ChatGPT") in ways that are specifically authorized by the course instructor. All submitted work must reflect your own thoughts and independent written work.

Re-submission of Previously Graded Material

Without the explicit written permission of the instructor, you may not submit any academic work for which credit has been obtained previously, or for which credit is being sought, in another course or program of study in the University or elsewhere.

Use of Statistical Pattern Recognition on Multiple Choice Exams

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Accessible Education (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review [The policy on Accommodation for Students with Disabilities](#)

Correspondence Statement

The centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner. Students are further expected to attend to announcements presented through Brightspace, and to read emails generated in this way.

Brightspace

All course material will be posted to OWL Brightspace: <https://westernu.brightspace.com/>. If students need assistance with OWL Brightspace, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the [Western Technology Services Helpdesk](#) online or by phone at 519-661-3800 or ext. 83800 for technical support. Current versions of all popular browsers (e.g., Safari, Chrome, Edge, Firefox) are supported with OWL Brightspace; what is most important is that you update your browser frequently to ensure it is current. All JavaScript and cookies should be enabled.

Copyright and Audio/Video Recording Statement

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. Unless explicitly noted otherwise, you may not make audio or video recordings of lectures – nor may you edit, re-use, distribute, or re-broadcast any of the material posted to the course website.

Contingency Plan for an In-Person Class Pivoting to 100% Online Learning

In the event of a situation that requires this course to pivot to online content delivery, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on Brightspace for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor. Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.