

Course Syllabus

Faculty Information

Name: Shelby Langer, PhD
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Office hours: By appointment only. Arranged via email.

Course Information

Course Number

NUR 609

Course Title

Quantitative Research Design and Methods

Credit Hours

3

Course Modality

Hybrid

Course Meeting Information

Thursday 1-4pm
Health South 292 on the downtown campus or via Zoom

Prerequisites

- Admission to a graduate program, inferential statistics, and an introductory graduate research methods course

Corequisites

- None

Course Description

Examines multiple research approaches in clinical and health policy research from a quantitative perspective

General Course Overview/Objectives

This course focuses on the assessment of quantitative research design and methods, quantitative data collection strategies, data analysis, and the practical application of selected methods to empirical research problems. Theory-based intervention research is an essential part of the course as are strategies to develop evidence-based practice for nursing. An expected outcome of the class will be the development of a quantitative research proposal.

Student Learning Outcomes

At the completion of this course, students will be able to:

1. Evaluate the research literature on the use of theories and/or conceptual frameworks and be able to select a relevant theory and/or conceptual framework to identify study constructs, formulate research questions, and generate hypotheses.
2. Review the research literature to provide context and rationale for a research proposal, which includes identifying (a) gaps in the knowledge base, (b) methods used to study the research problem at hand, and (c) conceptual underpinnings of relevant studies.
3. Compare and contrast the strengths and limitations of a variety of quantitative research designs as applied to health and nursing research problems and select an appropriate design for a research proposal.
4. Evaluate the quality of the measures used in empirical research in terms of their reliability and validity and select suitable measures for a research proposal.
5. Analyze selected research issues related to sampling, statistical conclusions, as well as internal, external, and construct validity and design a study that minimizes such validity threats.
6. Consider the nature of the study design and variables to select appropriate statistical methods.
7. Integrate ethical principles in clinical research involving human subjects.
8. Synthesize course content through the development of a quantitative research proposal (that may be part of an NSRA grant proposal submitted to the NIH for funding).

Course Materials

Required Materials

- Polit, D.F. & Beck, C.T. (2021). *Nursing research: Generating and assessing evidence for nursing practice* (11th ed.). Wolters Kluwer. ISBN 978-1-975110-64-2.
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). Open University Press. ISBN 9780335249497

Optional Materials

- American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). <https://doi.org/10.1037/0000165-000>

General Topic Schedule

| | Outcome(s) | Topics/Lessons | Activities | Assignments |
|---------------|------------|---|---|--|
| Week 1 | #1 | <ul style="list-style-type: none"> • Intro to course • Key concepts and steps in research | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapters 1-3 • Practice critique |
| Week 2 | #1, 2 | <ul style="list-style-type: none"> • Research problem, questions, and hypotheses • Literature reviews | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapters 4, 5 • Critique #1 |
| Week 3 | #1, 2 | <ul style="list-style-type: none"> • Theories and frameworks | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapter 6 • Critique #2 |

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|----------------|-------|--|---|---|
| Week 4 | #3, 5 | <ul style="list-style-type: none"> • Experimental design and causal inference | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapters 8, 9 • Critique #3 |
| Week 5 | #3, 5 | <ul style="list-style-type: none"> • Quasi-experimental designs • Non-experimental designs | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapter 9 • Critique #4 • Evidence table |
| Week 6 | #5 | <ul style="list-style-type: none"> • Statistical conclusion/ internal/ external/ construct validity | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapter 10 • Critique #5 |
| Week 7 | #4 | <ul style="list-style-type: none"> • Data collection and quality | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapters 14, 15 • Critique #6 |
| Week 8 | #4 | <ul style="list-style-type: none"> • Developing and testing self-report scales | <ul style="list-style-type: none"> • Lecture • Class discussion • Scale reliability using SPSS | <ul style="list-style-type: none"> • Polit & Beck chapter 16 • Pallant (2020) chapters 2, 9 • Critique #7 |
| Week 9 | #8 | <ul style="list-style-type: none"> • Proposal part I: conceptual design | <ul style="list-style-type: none"> • Student conceptual design presentations | <ul style="list-style-type: none"> • Proposal part I and oral presentation |
| Week 10 | #3 | <ul style="list-style-type: none"> • Pilot and feasibility studies | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Bowen et al. (2009) • Czajkowski et al. (2015) • Assessment table |
| Week 11 | #6 | <ul style="list-style-type: none"> • Data management • Descriptive statistics | <ul style="list-style-type: none"> • Lecture • Hands-on exercises using SPSS | <ul style="list-style-type: none"> • Polit & Beck chapter 17 • Pallant (2020) chapters 6-8 • Critique #8 |
| Week 12 | #7 | <ul style="list-style-type: none"> • Ethics in research | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapter 7 • CITI training • Critique #9 |
| Week 13 | #5 | <ul style="list-style-type: none"> • Sampling, recruitment and retention | <ul style="list-style-type: none"> • Lecture • Class discussion | <ul style="list-style-type: none"> • Polit & Beck chapter 13 • Langer et al. (2021) • Critique #10 |
| Week 14 | #6 | <ul style="list-style-type: none"> • Inferential statistics | <ul style="list-style-type: none"> • Lecture • Hands-on exercises using SPSS | <ul style="list-style-type: none"> • Polit & Beck chapter 18 • Pallant (2020) pages 123-125 and chapters 11, 13, 14, 17, 18 |

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|----------------|----|-----------------|---|----------------------|
| Week 15 | #8 | • Dissemination | • Student presentation of final proposals | • Oral presentations |
|----------------|----|-----------------|---|----------------------|

Course Grading

Methods of Instruction

This course uses Canvas for the facilitation of communications between faculty and students, submission of assignments, and posting of grades. The course site can be accessed at <https://my.asu.edu> or <https://canvas.asu.edu>.

Activities in this course include discussion/presentations; textbook and supplemental readings; individual and group activities; and case scenarios.

Methods of Evaluation

| Assessment Type | Number in Course | Total Course Value |
|------------------|------------------|--------------------|
| CITI training | 2 | 5% |
| Critiques | 10 | 40% |
| Evidence table | 1 | 5% |
| Proposal part I | 1 | 15% |
| Assessment table | 1 | 10% |
| Full proposal | 1 | 25% |

Description of Assessments

- **CITI training.** You will be required to complete two CITI-based trainings, listed below. Upload documentation of completion (a pdf showing your scores) to our course site via the appropriate assignment tab. Proof of current training, completed within the past 3 years, will be accepted in lieu of new training during the semester.
 - Social-behavioral comprehensive foundational or refresher course
 - Community-engaged and community-based participatory research (CBPR)
- **Critiques**

- Over the course of the semester, you will read and evaluate 10 journal articles, each relevant to that week's topic. In so doing, you will provide a written response to a specific set of questions. You will also present and discuss your critiques in class.
- **Evidence table summarizing relevant literature.** You will prepare an evidence table to aid synthesis of literature relevant to your proposal. An example can be found in the evidence table assignment tab on our Canvas course site.
- **Papers.** The paper submissions are designed to help you develop a quantitative research proposal as specific content is covered in class.
 - I. **Proposal part I** is a paper that describes the problem your research project will address and the significance of the problem. It will also include a synthesis of the literature related to the research topic, a framework or theory guiding the study, specific aims, and research questions or hypotheses. An illustration and an explanation of the theory/ model that you will be testing/ examining/ exploring should be included. The illustration may be prepared using the software of your choice (e.g., Power point). The paper should cover the following:
 - A. Introduction
 - i. Significance
 - ii. Statement of the problem
 - iii. Theoretical or conceptual framework
 - iv. Specific aim(s)
 - v. Research question(s)
 - vi. Hypotheses and predictions
 - B. References in APA style
 - II. **Assessment table and narrative.** You will produce a table listing constructs of interest for your proposed study (mapping on to the conceptual model) as well as specific measures and psychometric information about each measure. A discussion of the measurement of these variables including validity and reliability of the assessment tools is required.
 - III. **The Final proposal** will be the complete research proposal including:
 - A. Introduction
 - i. Significance
 - ii. Statement of the problem
 - iii. Theoretical or conceptual framework
 - iv. Specific aim(s)
 - v. Research question(s)
 - vi. Hypotheses and predictions
 - B. Methods
 - i. Type of research design
 - ii. Setting
 - iii. Participants
 - iv. Procedures
 - v. Assessment (instruments with reliability and validity testing information)
 - vi. Analysis
 - vii. Limitations
 - viii. Timeline
 - C. References in APA style

The length of each section will vary, but the final research proposal will be limited to 12 double-spaced pages following APA seventh edition format. Please note that the references are not included in this page limit. Submit the proposal in MS Word (not pdf) via the relevant assignment link in our Canvas course site.

Course Grading Scale

| Grade | GPA | Percentage | Points Range |
|--------------|--------------------------------|-------------------|---------------------|
| A | 4.0 | 90 – 100% | 90-100 |
| B | 3.0 | 80 – 89% | 80-89 |
| C | 2.0 Course must be repeated | 70 – 79% | 70-79 |
| D | 1.0 Course must be repeated | 60 – 69% | 60-69 |
| E | 0.0 Course must be repeated | 59% and below | 59 and below |

Course Grading Procedure

Grades reflect your performance on assignments and adherence to deadlines. Graded assignments will be available within 72 hours of the due date via the Grades tab in Canvas, unless otherwise notified by the instructor.

Course Policies & Procedures

Hybrid Course

This is a course that requires active participation in both the online and face-to-face components of the course.

Communicating With the Instructor

This course uses a Canvas discussion board called "Hallway Conversations" for general questions about the course. Prior to posting a question, please check the syllabus, announcements, and existing posts. If you do not find an answer, post your question. You are encouraged to respond to the questions of your classmates.

Email questions of a personal nature to your instructor. You can expect a response within two business days.

Email and Canvas Inbox

ASU email is an official means of communication among students, faculty, and staff (<http://www.asu.edu/aad/manuals/ssm/ssm107-03.html>). Instructor correspondence will be sent to your ASU email account or through the Canvas Conversations Inbox tool. Please ensure that

your Canvas notification preferences are current at the beginning of each semester (for more information see <https://community.canvaslms.com/docs/DOC-10624-4212710344>).

Students are expected to read and act upon messages in a timely fashion. Students bear the responsibility of missed messages and should check their ASU-assigned email and Canvas Inbox regularly.

Campus Network or Canvas Outage

When access to Canvas is not available for an extended period of time (greater than one entire evening) you can reasonably expect that the due date for assignments will be changed to the next day (assignment still due by 11:59pm).

If an outage occurs, it is expected that you will confirm that the outage is with the University and not your local internet service provider. To monitor the status of campus networks and services, please visit the System Health Portal (<https://uto.asu.edu/system-health>). If a system-wide ASU outage is NOT listed, you are responsible for contacting the ASU Help Desk to report and troubleshoot the issue. By contacting the help desk, a request case number will be created for you, which serves as an important documentation of your attempt to resolve any technical problems in a timely fashion. You may be required to forward this documentation to your instructor.

Course Time Commitment

This three-credit course requires approximately 135 hours of work. Please expect to spend 1.5 hours each week in class and around 7.5 hours each week completing homework and preparing for the class time.

Absences and Late or Missed Assignments

Students are expected to attend every class and remain in class for the duration of the session. Failure to attend class, or arriving late may impact your ability to achieve course objectives which could affect your course grade. An absence, excused or unexcused, does not relieve a student of any course requirement. Regular class attendance and adherence to assignment/test due dates are the student's responsibility. Please follow the appropriate University policies to request an accommodation for religious practices (<http://www.asu.edu/aad/manuals/acd/acd304-04.html>) or to accommodate a missed assignment due to University-sanctioned activities (<http://www.asu.edu/aad/manuals/acd/acd304-02.html>).

Notify the instructor BEFORE an assignment is due if an urgent situation arises and the assignment will not be submitted on time. Published assignment due dates (Arizona Mountain Standard time) are firm. Assignments not submitted by the due date are subject to a 2% penalty per day.

Submitting Assignments

All assignments, unless otherwise announced, MUST be submitted to the designated area of Canvas. Do not submit an assignment via other methods unless specifically directed.

Drop and Add Dates/Withdrawals

This course adheres to a set schedule and may be part of a sequenced program, therefore, there is a limited timeline to drop or add the course (<https://students.asu.edu/academic-calendar>). Consult with your advisor and notify your instructor to add or drop this course. If you are considering a withdrawal, review the following ASU policies:

- Withdrawal from Classes (<http://www.asu.edu/aad/manuals/ssm/ssm201-08.html>)
- Medical/Compassionate Withdrawal (<http://www.asu.edu/aad/manuals/ssm/ssm201-09.html>)
- Grade of Incomplete (<http://www.asu.edu/aad/manuals/ssm/ssm203-09.html>)

Grade of Incomplete

Students must request a grade of Incomplete at least two weeks prior to the last day of the semester. DNP students are required to have successfully completed 80% of their coursework (with a B or better) prior to requesting a grade of incomplete. A grade of “I” can only be given when a student, who is doing otherwise acceptable work, is unable to complete a course (e.g., final exam or term paper) because of illness or other conditions beyond the student’s control however it is entirely up to the instructor to approve the Incomplete. The student and instructor must complete a Request for Grade of Incomplete form.

The exact timeframe for completion is negotiated between student and faculty however; students who receive a grade of “I” in any course must complete course requirements within one calendar year of the scheduled course and may NOT have longer than one calendar year. If a regular grade is not assigned within the calendar year, the “I” becomes permanent part of the transcript. To repeat the course for credit students must re-register and pay the required fees. The grade for the repeated course will appear on the transcript but will not replace the permanent “I.” Please see your program’s student handbook for the procedure for to request an Incomplete.

Grade Appeals

Grade disputes must first be addressed by discussing the situation with the instructor. If the dispute is not resolved with the instructor, the student may appeal to the department chair per the University Policy for Student Appeal Procedures on Grades (<https://catalog.asu.edu/appeal>).

Student Conduct and Academic Integrity

ASU expects and requires its students to act with honesty, integrity, and respect. Required behavior standards are listed in the Student Code of Conduct and Student Disciplinary Procedures (<http://www.asu.edu/aad/manuals/ssm/ssm104-01.html>), Computer, Internet, and Electronic Communications policy (<http://www.asu.edu/aad/manuals/acd/acd125.html>), ASU Student Academic Integrity Policy (<http://provost.asu.edu/academicintegrity> and <https://provost.asu.edu/node/20>), and outlined by the Office of Student Rights & Responsibilities (<https://eoss.asu.edu/dos/srr>). Anyone in violation of these policies is subject to sanctions.

Students must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student's original work, unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

Students are entitled to receive instruction free from interference by other members of the class (<http://www.asu.edu/aad/manuals/ssm/ssm104-02.html>). An instructor may withdraw a student from the course when the student's behavior disrupts the educational process per Instructor Withdrawal of a Student for Disruptive Classroom Behavior (<http://www.asu.edu/aad/manuals/ssm/ssm201-10.html>).

Appropriate online behavior (also known as *netiquette*) is defined by the instructor and includes keeping course discussion posts focused on the assigned topics. Students must maintain a cordial atmosphere and use tact in expressing differences of opinion. Inappropriate discussion board posts may be deleted by the instructor.

If a student should deem any part of the course content offensive, this should be brought to the attention of the instructor, or alternatively, to the unit chair or director via email. Communication should include reference to the course information and specific offensive content.

The Office of Student Rights and Responsibilities accepts incident reports (<https://eoss.asu.edu/dos/srr/filingreport>) from students, faculty, staff, or other persons who believe that a student or a student organization may have violated the Student Code of Conduct.

Title IX Statement

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling> is available if you wish to discuss any concerns confidentially and privately. ASU online students may access 360 Life Services, <https://goto.asuonline.asu.edu/success/online-resources.html>.

Edson College of Nursing and Health Innovation Student Handbook

Students are expected to adhere to the policies and guidelines in the current edition of the Edson College of Nursing and Health Innovation for your program (<https://nursingandhealth.asu.edu/student-life/current-students>).

Prohibition of Commercial Note Taking Services

In accordance with ACD 304-06 Commercial Note Taking Services (<http://www.asu.edu/aad/manuals/acd/acd304-06.html>), written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the note taker's name as well as the instructor's name, the course number, and the date.

Course Evaluation

Students are expected to complete the course evaluation. The feedback provides valuable information to the instructor and the college and is used to improve student learning. Students are notified when the online evaluation form is available.

Syllabus Disclaimer

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. Please remember to check your ASU email and the Canvas course site often.

Syllabus Template Version 3.5

Accessibility Statement

Disability Accommodations: Qualified students with disabilities who will require disability accommodations in this class are encouraged to make their requests to me at the beginning of the semester either during office hours or by appointment. Note: Prior to receiving disability accommodations, verification of eligibility from ASU Student Accessibility and Inclusive Learning Services (SAILS) is required. Disability information is confidential.

Establishing Eligibility for Disability Accommodations: Students who feel they will need disability accommodations in this class but have not registered with Student Accessibility and Inclusive Learning Services (SAILS) should contact SAILS immediately. Campus locations and contact information are available on the SAILS website (<https://eoss.asu.edu/accessibility>). Check the SAILS website (<https://eoss.asu.edu/accessibility>) for eligibility and documentation policies.

Email: Student.Accessibility@asu.edu

SAILS Phone: (480) 965-1234

SAILS FAX: (480) 965-0441

Technical Requirements & Support

Computer Requirements

This course requires Internet access and the following:

- A web browser. Please use only Google Chrome (<https://www.google.com/chrome>) or Mozilla Firefox (<http://www.mozilla.org/en-US/firefox/new/>)
- Adobe Acrobat Reader (<http://get.adobe.com/reader/>)
- Microphone (optional) and speaker

Computer Skills Requirements

It is expected that you will be able to do at least the following tasks on a computer:

- Accessing and using instructional/communication tools in the Canvas Learning Management System (see <https://community.canvaslms.com/docs/DOC-10701> for more information)
- Using ASU email (see <http://links.asu.edu/emailguide> for more information)
- Creating and submitting files in commonly used word processing program formats (specifically Microsoft Word)
- Copying and pasting text
- Downloading and installing software

- Using spreadsheet programs (specifically Microsoft Excel)
- Using presentation and graphic programs (such as Microsoft PowerPoint, Google Slides, etc.)

Technical Support

This course uses Canvas to deliver course content. It can be accessed through MyASU at <http://my.asu.edu> or the Canvas home page at <https://canvas.asu.edu>.

To monitor the status of campus networks and services, visit the System Status Portal at <https://systemstatus.asu.edu> or via Twitter by following [@asuoutages](https://twitter.com/asuoutages).

To contact the help desk you have two options:

- Website: assessed through the MyASU Service Center at <http://my.asu.edu/service>
- Chat: assessed through the MyASU Service Center at <http://my.asu.edu/service>
- Call toll-free at 1-855-278-5080

Tutoring Support

Free tutoring support is available in person and online for most courses. Services are offered through ASU's University Academic Success Programs for currently enrolled students.

- Tutoring is available in math, business, science, and statistics courses.
- Writing tutoring is available for any writing project at any stage of the writing process.
- Graduate academic tutoring is available for writing and statistics.
- Supplemental Instruction (SI) facilitates collaborative study groups for selected courses.
- Academic skills tutoring can help with critical reading, study skills, note taking, and more.
- Resources are available through our YouTube channel, Zoom recordings, and handouts.

Visit <https://tutoring.asu.edu> or call (480) 965-9072 for more information about these services, to view our schedules, or to book an appointment.