

**SRM 600 – 902: Introduction to Graduate Research**

CRN 14635



**Course Syllabus**

**Instructor:**

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Applied Statistics and Research Methods  
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**Office Hours**

Tuesday 6 – 7 p.m. (MST) and by appointment  
Virtual via Zoom

**Course Information:**

Course Time & Location:  
Distance/Online Instructional Method  
UNC Canvas: <http://www.unco.edu/canvas/>

**Course Objectives:**

Following completion of this course, students should be able to write a research proposal to include introduction, literature review, rationale for the study, description of the design, sample selection, instrumentation/materials, data collection procedures, and data analysis procedures. To accomplish this, the following objectives will be addressed:

- Define basic terminology and concepts associated with research
- Identify researchable topics and issues within their specialty field
- Critically evaluate published research reports
- Describe the steps and decisions involved in planning, designing, and implementing a research study
- Compute and interpret basic statistics
- Be able to write research proposals and reports following APA guidelines.

**OER Textbooks:**

Gay, L. R., Mills, G. E., & Airasian, P. W. (2012). *Educational Research: Competencies for Analysis and Applications*. 10th Edition. Boston, Pearson  
(from: [https://yuli-elearning.com/pluginfile.php/4831/mod\\_resource/content/1/Gay-E%20Book%20Educational%20Research-2012.pdf](https://yuli-elearning.com/pluginfile.php/4831/mod_resource/content/1/Gay-E%20Book%20Educational%20Research-2012.pdf)).

Additional Resource: Davies, C. (2020). *A quick guide to quantitative research in the social sciences* (from OER Open Textbook Library).

**University Statements:**

It is the policy and practice of the University of Northern Colorado to create inclusive learning environments. Please go to [https://www.unco.edu/center-enhancement-teaching-learning/teaching-resources/syllabus\\_statements.aspx](https://www.unco.edu/center-enhancement-teaching-learning/teaching-resources/syllabus_statements.aspx) to learn more about such topics as Disability Resources, Title IX, Academic Integrity, Attendance, Equity and Inclusion, Food Insecurity and Basic Needs, Land Acknowledgement, Name/Pronoun in Use, the Writing Center, Covid-19, and other topics as they are added.

Modules	Topic Area	Assign Reading/Material	Activities/Assignment
One (Weeks 1 & 2)  08/26/2024 & 09/02/2024	Overview of the course <ul style="list-style-type: none"> <li>Introduction to scientific method and basic research (Qualitative, Quantitative and Mixed Methods)</li> <li>Concepts/Terminology</li> <li>Preview of the research process</li> <li>Identifying a researchable problem/question(s)</li> <li>Justifying the need for a study</li> <li>Research questions/hypotheses</li> </ul>	Chapter 1: Introduction to Educational Research Chapter 2: Selecting and Defining a Research Topic  Read Exercise 1 article  PowerPoints: Course Intro	Group Members (for project proposal). <ul style="list-style-type: none"> <li>Canvas would automatically break the class into groups of five members.</li> <li>Decide Research Proposal topic and research question(s)</li> <li>Module homework/activities posted on canvas</li> </ul>
Homework due before Module 2		<ol style="list-style-type: none"> <li>1. Make sure you are in a group and meet via Zoom to discuss your group's potential topic</li> <li>2. Post your group idea about research (Topic)</li> <li>3. Post research question(s) in assignment 1</li> <li>4. Read "Instructions for Project Proposal - Introduction" under "Course Material" module</li> <li>5. Complete Module 1 assignment and quiz - see due dates on Canvas.</li> </ol>	
Two (Weeks 3 & 4)  09/09/2024 & 09/16/2024	Literature Review/Research Approaches <ul style="list-style-type: none"> <li>Different research approaches</li> <li>Different types of literature reviews</li> <li>Searching and reviewing the literature (e.g., different databases for peer reviewed literature)</li> </ul>	Chapter 3: Reviewing the Literature  PowerPoint: Review of Literature  PowerPoint: Research Questions and the Literature  Review	<ul style="list-style-type: none"> <li>Work on proposal Introduction / Literature Review with your group member.</li> <li>Literature review map &amp; annotated bibliography</li> <li>Module homework</li> </ul>
Homework due before Module 3		<ol style="list-style-type: none"> <li>1. Post literature map of Lit Review in Assignments 2</li> <li>2. Post annotated bibliography in Assignments 2</li> <li>3. Quiz 2: Replaced by lit map and bibliography of your proposal – see due date on Canvas.</li> </ol>	
Three (Weeks 5 & 6)  09/23/2024 & 09/30/2024	Quantitative Research and Different Types of Designs <ul style="list-style-type: none"> <li>Experimental research</li> <li>Quasi-Experimental Designs (Causal-Comparative research)</li> <li>Non-Experimental Designs: Ex post facto research Correlational research Survey research</li> </ul>	Chapter 7: Survey Research Chapter 8: Correlational Research Chapter 9: Causal-Comparative Research Chapter 10: Experimental Research  Davies (2020)-A quick Guide to Quantitative Research in the Social Sciences  PowerPoint: Experimental Designs ED  PowerPoint: Quasi-experimental Designs  PowerPoint: Non-experimental Designs  PowerPoint: Survey Research	<ul style="list-style-type: none"> <li>Group critique assigned Introduction/Literature Review</li> <li>Methods section / Research proposal design choice</li> <li>Module homework</li> </ul>
Homework due before Module 4		<ol style="list-style-type: none"> <li>1. Exchange Intro/Lit Review Rough Draft and Critique Intro/Lit Review due September 27</li> <li>2. Module 3 Quiz: Random Selection vs Random Assignment, and Literature Review due October 4</li> <li>3. Complete Review of Intro/Lit Review with Feedback due October 4.</li> </ol>	
Four (Weeks 7 & 8)  10/07/2024 & 10/14/2024	Qualitative Research and Different Types of Designs <ul style="list-style-type: none"> <li>Narrative design</li> <li>Ethnographic design</li> <li>Case-study design</li> <li>Phenomenological design</li> <li>Grounded theory design etc.</li> </ul> Analyzing and Reporting Qualitative Research	Chapter 14: Qualitative Data Collection Chapter 15: Narrative Research Chapter 16: Ethnographic Research Chapter 17: Case Study Research Chapter 18: Qualitative Research Data Analysis and Interpretation  PowerPoint: Qualitative Research  PowerPoint: Family Research	Qualitative Research data-collection tools: <ul style="list-style-type: none"> <li>Interviews</li> <li>Focus groups</li> <li>Observations</li> <li>Records/archival review</li> <li>Qualitative questionnaires- (open ended-questions)</li> <li>Module homework</li> </ul>
Homework due before Module 5		<ol style="list-style-type: none"> <li>1. Exchange Rough Draft of Methods Section with other group and Critique Rough Draft and discuss it between group due October 11.</li> <li>2. Conduct Observation/Interview. Post Observation/Interview on October 18.</li> </ol>	

		4. Post a copy of your critique with review point of Introduction/Lit Review Section October 18 5. Submit Revised Introduction and Review of Literature due October 18	
Five (Weeks 9 & 10) 10/21/2024 & 10/28/2024	Methods and Analysis <ul style="list-style-type: none"> <li>Participants, Instruments, Procedures and Data Analysis</li> <li>Sampling and logic of sampling error</li> <li>Descriptive statistics and normal distribution</li> <li>Standard scores</li> <li>Group comparisons</li> </ul>	Chapter 5: Selecting a Sample Chapter 6: Selecting Measuring Instrument Chapter 12: Descriptive Statistics PowerPoints: Sampling PowerPoint: Descriptive Statistics and Normal Distribution	<ul style="list-style-type: none"> <li>Group critique of methods section</li> <li>Descriptive statistics activities with SPSS</li> <li>Module homework</li> </ul>
Homework due before Module 6		1. Submit Module 5 Descriptive Analysis Activity – See due date on Canvas 2. Post a copy of your critique with review point of the Methods Section due October 25	
Six (Weeks 11 & 12) 11/04/2024 & 11/11/2024	Principles and Concepts of Inferential Statistics <ul style="list-style-type: none"> <li>Types of inferential statistics</li> <li>Quantitative data analysis – Comparison, Prediction, Relationship or Correlation/Bivariate analysis</li> <li>Hypothesis testing, Level of significance and Statistical power analysis</li> <li>Single sample z and t-tests</li> </ul>	Chapter 13: Inferential Statistics PowerPoint: Types of Inferential Statistics PowerPoint: Hypothesis Testing PowerPoint: Hypothesis Testing, Level of significance, and Power PowerPoint: Single Sample z and t-tests PowerPoint: Correlation	<ul style="list-style-type: none"> <li>Continue Analysis / Discussion sections of your group project.</li> <li>Module homework or activities on quantitative analysis. For example, Comparison, Relationship or Correlation analyses.</li> </ul>
Homework due before Module 7		1. Submit Module 6 – Comparison and Relationship assignments – see due date on Canvas	
Seven (Weeks 13 & 14) 11/18/2024 & 11/25/2024	Measurement, Validity, Reliability and Reporting <ul style="list-style-type: none"> <li>Types of Measurement</li> <li>Locating, evaluating, and reporting measures</li> <li>Measurement Validity</li> <li>Measurement Reliability</li> </ul>	Review Chapter 6 (especially Page 160 – 164) PowerPoint: Types of Measurement PowerPoint: Measurement Reliability PowerPoint: Measurement Valid	<ul style="list-style-type: none"> <li>Begin Poster presentation of group research proposal project.</li> <li>Module homework or activity to demonstrate validity and reliability assessment.</li> </ul>
Homework due before Module 8		1. Reliability activity – see due date on Canvas 2. Group assignment on validity and reliability – see due date on Canvas 3. Module 7 Quiz – see due date on Canvas	
Eight (Weeks 15 & 16) 12/02/2024 & 12/09/2024	Research Ethics and Group Project <ul style="list-style-type: none"> <li>Ethics in Educational Research</li> <li>Presentation of group project</li> </ul>	Chapter 1: Page 19 – 25 Guidelines for Writing Quantitative & Qualitative Research Proposals Decide on date for Group Project presentation Date of presentation within the last week of the semester.	<ul style="list-style-type: none"> <li>Discussion board: Ethics</li> <li>Presentation of group research project</li> <li>Post final paper and poster</li> <li>Complete group peer evaluations</li> </ul>
		1. Ethics Discussion – see due date on Canvas 2. Post Final Written Proposal in Assignment due December 12 3. Group Peer Evaluations due by December 13	

### Grading scale:

All assignments are part of a class experience and therefore cannot be submitted late. **Extreme situations requiring late submission should be discussed with the instructor in advance. All late assignments will be reduced to a B before grading begins and will receive minimal written feedback.**

Grades will be assigned as follows:

A	94% and above	A-	90-93%
B+	86-89%	B	83-85%
B-	80-82%	C+	76-79%
C	70-75%	C-	69%