North Carolina Central University
"Communicating to Succeed."

School of Education
"Preparing Educators for Diverse Cultural Contexts for the 21st Century."

Syllabus
EDGR 5910 – OL2
Introduction to Statistical Methods in Education
Spring 2025
3 Credit Hours

Instructor: Racheal Brooks, Ph.D.
Email: rmbrooks@nccu.edu **(Email is the best way to contact me.)**
Virtual Office Hours: By appointment via WebEx or Zoom
Virtual Office Link: **Dr. Brooks's Zoom Room**

Course Description

Candidates will learn to interpret tests and develop educational measurements using statistics based on the normal probability curve, correlations and measures of variance. Candidates will also learn to evaluate educational research by analyzing data, t-tests, and analysis of variance. This course prepares candidates to use statistical tools in conducting action research.

Course Methodology

This course is 100% asynchronous (**no live class meetings required**) online, with students expected to use NCCU's Canvas Learning Management System for all coursework. Students are expected to complete and submit all assignments in Canvas. Students are expected to complete all reading assignments, participate in discussion board forums, and complete all assignments by due dates outlined in the course outline. Carefully read this syllabus and our course schedule. These documents will give you the information you need to know about the course. Contact me with any questions or concerns at any time.

Course Outcomes:

This course is designed to introduce students to the theory and application of statistical procedures in education clustered around the following topics: (1) descriptive statistics such as scales of measurement, central tendency, and standard deviation, (2) sampling, probability, and sampling distributions (3) inferential statistics, tests of significance (z, t, and r). Upon completing the course, students are expected to be able to calculate statistical tests, describe the statistical concepts examined in the course, and design and interpret research studies within their professional fields.

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Student Learning Outcomes (SLOs):
Upon completing this course, students will be able to:
1. Use statistics terminology correctly to design and interpret research.
2. Compute frequencies, central tendency, variability, probability, z-scores, correlations, *t* statistic, and correlation.
3. Conduct a hypothesis test using a z-score, *t*, and *r* statistic.
4. Represent and interpret the meaning of data on a given graph.
5. Describe the meaning of major statistical concepts both verbally and computationally.

Foliotek Statement & Requirement:
Foliotek is an electronic portfolio adapted by the School of Education. Please check with your department or program for the required assignments to upload.

Required Text
Gravetter, F.J., Wallnau, L.B., Forzano, L.B., & Witnauer, J.E. (2021). Essentials of Statistics for the Behavioral Sciences (Custom 10th edition), Cengage Learning (MindTap, ISBN 9780357035528).

The e-book/*MindTap* bundle is available through the university bookstore and textbook publisher, CengageBrain online. Students must register for an account with *MindTap* within 24 hours of the beginning of the course. The registration instructions are housed on Canvas under the Interactive Syllabus tab and within the Pre-Course Activities module. Be sure to **disable pop-up blockers** and use the Google Chrome browser.

Canvas Website
This class will be online and utilize the campus "Canvas" system. Every candidate/student will be set up with a username and password (if you don't already have one). You will be required to log on to the Canvas system in order to fulfill various assignments during the semester (e.g., submit assignments, obtain handouts). If you have questions about your Canvas account please IT department **first** at 919-530-7676. **Please access Canvas by going to** nccu.instructure.com **and log in using your MyEOL username and password.**

Minimum Technological Requirements
In this online-course, you should have access to a computer with a web camera and voice recording capabilities. If your computer does not have a functioning built- in microphone, you will need to purchase one. You should also have a device to play audio (i.e. built-in or external speakers, a headset, etc.). This course also requires that you have basic technological skills and knowledge of the Canvas Learning Management System. Follow the links below to learn more about the basic technological skills required for this course:
1. Using the Canvas Learning Management System
2. Using your Google-sponsored NCCU account
3. Copying and pasting
4. How to install programs on a computer (Mac & PC)

Email Correspondence

When contacting me via email, your email subject line should be relevant to your email content. Please use "EDGR 5910:" and then describe the nature of your email. **Email is the BEST way to contact me.** I check my University email account Monday through Friday between the hours of 8am and 5pm, except on University-observed holidays. You can expect a response to your email within 24 hours. If your email is sent after Friday at 5pm, you can expect a response the following business day.

Course Format

You have chosen to take EDGR 5910 Introduction to Statistical Methods in Education online during the spring semester. Online learning is different from traditional, face-to-face classes. While the material presented for this course fulfills NCATE, CACREP and NCCU's School of Education standards, the delivery of the material is indeed different from traditional classroom instruction and requires students to be active participants in their own learning.

Requirements for this Course

Understanding the Calendar

This course term lasts from January 13th – May 5th. Weeks will be Monday 12:00 midnight through Sunday 11:59PM. Be sure to utilize a calendar to organize how you will complete all assignments for this course.

Class Participation

You are expected to "attend class," which means participate in scholarly dialogue with classmates weekly. It is expected that all students engage in respectful intellectual discourse throughout the term. **Please submit your Intent to Participate (3 points)** found in the Pre-Course Activities module by **Friday, January 17th** to confirm your participation in the course.

Please Note: Regarding attendance and participation within Canvas discussions as well as interactions with your classmates and me, you will be graded using the following criteria:
- Demonstrate effective leadership skills;
- Actively engage in class activities and participate;
- Contribute to class discussion displaying critical and creative thinking skills; and
- Demonstrate dispositions consistent with an inclusive, multicultural, and ethical teaching or counseling role in promoting well-being, healthy relationships, academic success, and career mastery.

Description of Tasks per Week

Intent to Participate (3 points) – You will earn and additional 3 points toward your total points in the course simply by confirming your attendance by January 17, 2025.

End-of-the Week Concept Mapping (130 points) – You will develop 13 concept maps (one at the end of each chapter) to demonstrate your understanding of the content presented each week. Successful concept mapping demonstrates the following qualities:

- Non-linear structure that provides a very complete picture of ideas,
- Indication of relative importance of ideas and mapping of simple and complex relationships between ideas,
- Demonstration of complex thinking about the meaningful relationship between ideas and content themes,
- Clear presentation of information that represents high-level understanding.
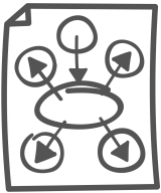
Concept maps will be submitted via Canvas to facilitate digital submission and objective grading. You may use www.coggle.com, a free concept-mapping website, to develop concept maps and will upload completed maps in .pdf form. You may also upload legible, hand-written concept maps. Instructions for completing this assignment can be found in Canvas. **All concept maps must be submitted by the posted due dates.**

End-of-the Chapter Problems (487 points) – You are scheduled to solve 13 sets of end of the chapter problems. These problems will represent the descriptive and foundations of inferential statistics. End-of-chapter problems will be housed in *MindTap* to ease the process of digital submission and objective grading. You will receive immediate feedback after each attempt and have a chance to correct your mistakes by making the second and/or the third question attempt with no penalty.

Weekly Discussions (280 points) – I will post a set of discussion questions within the weekly modules related to each chapter and for the week of independent work on your Research Design Term Paper. Your replies to these chapter discussion questions will be counted toward the course discussions grade. Course attendance is required and measured through your timely reply to the weekly discussion questions. Guidelines for weekly discussions will be available within Canvas. I encourage you to use these discussion questions as an opportunity to "make sense" of statistics and post messages that are relevant to your personal and professional lives.

Research Design Term Paper (100 points) – At the end of the term, you will be asked to design research in two different ways using the ***t* statistic for a single sample** and **Pearson *r***. For each of the design type, you will:

1. state the research problem,
2. state the null and alternative hypotheses, alpha level and the critical region
3. choose your sample and sample size,
4. assess the evidence by stating the value of the sample statistics, and
5. draw conclusions and make a decision by comparing the sample statistic to the critical region.

The paper is not expected to have detailed computations of the sample statistic. When assessing the evidence (#4 above) simply state the value of the sample statistic. You don't need to show your calculations. Please name each of the two tests and go through the above five steps for each research design. You could revisit your Canvas Discussion postings for this assignment as long as you design two studies and address all five components for each study as described above. This will be your capstone assignment and will demonstrate your understanding of statistics and ability to use it to design research studies. The paper is due to Canvas by **11:59pm on May 5th**. See Canvas for a sample template.

Student Evaluation

Grades will be assigned to students using the following scale.

A	900 – 1000 points
B	800 – 899 points
C	700 – 799 points
F	699 points and below
*I	Work that has not been fully completed

*An "I" grade is granted only in exceptional cases. Work must be completed within a year or the course will have to be repeated. **Attendance at an online class means posting assignments on their due dates and participating in weekly discussions on Canvas.*

The Incomplete (I) Grade Policy

The Grade of I: The grade of "I" is assigned at the discretion of the instructor when a student who is otherwise passing (completed 75% of course work) has not due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed according to the written and signed agreement between the instructor and the student within the deadline set by the instructor, not to exceed one year from the end of the semester in which the "I" was assigned. The signed written agreement must be filed in the office of the department chair or dean and a copy must also be placed in the instructor's file at the same time that final grades are due. If the "I" is not removed during the specified time, it will automatically turn into an F or NP.

Weekly Assignments

Unit	Week	Topics	Course Activities/Assignments
Unit 1	Week 1 (January 13 – January 19)	Ch 1, Intro to Statistics	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas
	Week 2 (January 20 – January 26)	**Dr. Martin Luther King, Jr. Day Observance (Jan. 20) No classes** Ch 2, Frequency Distributions	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas
	Week 3 (January 27 – February 2)	Ch 3, Central Tendency	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas
	Week 4 (February 3 – February 9)	Ch 4, Variability	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas
Unit 2	Week 5 (February 10 – February 16)	Ch 5, z-scores	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas
	Week 6 (February 17 – February 23)	Ch 6, Probability	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas
	Week 7 (February 24 – March 2)	Ch 7, The Distribution of Sample Means **Ramadan Begins (February 28)***	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas
	Week 8 March 3 – March 9)	Ch 8, Introduction to Hypothesis Testing	- Weekly concept map to Canvas - Chapter problems to MindTap - Ch discussions to Canvas

Unit 3	Week 9 (March 10 – March 16)	**Spring Break**	No Work Due
	Week 10 (March 17 – March 23)	Ch 9, Introduction to *t* Statistic **Spring Equinox (March 20)***	• Weekly concept map to Canvas • Chapter problems to MindTap • Ch discussions to Canvas
	Week 11 (March 24 – March 30)	Ch 10, The *t* Test for Two Independent Samples **Eid al-Fitr (March 29)***	• Weekly concept map to Canvas • Chapter problems to MindTap • Ch discussions to Canvas
	Week 12 (March 31 – April 6)	Ch 11, The *t* Test for Two Related Samples **Last day to withdraw with "WC" (April 3)**	• Weekly concept map to Canvas • Chapter problems to MindTap • Ch discussions to Canvas
Unit 4	Week 13 (April 7 – April 13)	Ch 12, Introduction to Analysis of Variance **Passover Begins (April 12)***	• Weekly concept map to Canvas • Chapter problems to MindTap • Ch discussions to Canvas
	Week 14 (April 14 – April 20)	Ch 14, Correlation and Regression **Good Friday Observance (No classes – April 18)** **Easter (April 20)*** **Passover Ends (April 20)***	• Weekly concept map to Canvas • Chapter problems to MindTap • Ch discussions to Canvas
	Week 15 (April 21 – April 28)	Independent Work on Research Design Term Paper	● Research Design Term Paper Draft
Final Assessment		**Research Design Term Paper Due in Canvas May 5 at 11:59pm**	

Inclusive Calendar and Flexible Work
*The course calendar reflects dates in which the University is officially closed for holiday observances as well as additional holidays during which the University remains open. However, I recognize these dates may not coincide with holidays or observances you may each honor. As such, please do not hesitate to contact me regarding the need to submit assignments at alternate times if a due date conflicts with your specific observances.

Statement of Inclusion/Non-Discrimination
North Carolina Central University is committed to the principles of affirmative action and non-discrimination. The University welcomes diversity in its student body, its staff, its faculty, and its administration. The University admits, hires, evaluates, promotes, and rewards on the basis of the needs and relevant performance criteria without regard to race, color, national origin, ethnicity, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran's status, or religion. It actively promotes diversity and respectfulness of each individual.

Student Accessibility Services
Students with disabilities (physical, learning, psychological, chronic or temporary medical conditions, etc.) who would like to request reasonable accommodations and services under the Americans with Disabilities Act must register with the Office of Student Accessibility Services (SAS) in Suite 120 in the Student Services Building. Students who are new to SAS or who are requesting new accommodations should contact SAS at (919) 530-6325 or sas@nccu.edu to discuss the programs and services offered by SAS. Students who are already registered with SAS and who would like to maintain their accommodations must renew previously granted accommodations by visiting the NCCU Accommodate Website and logging into their Eagle Accommodate Student Portal. Students are expected to renew previously granted accommodations at the beginning of each semester (Fall, Spring & Summer sessions). Reasonable accommodations may be requested at any time during the semester for all students; however, accommodations are not retroactive. Returning semester requests for returning students are expected to be done within the first two weeks of the semester. Students are advised to contact their professors to discuss the testing and academic accommodations that they anticipate needing for each class.

Students identifying as pregnant or other pregnancy-related conditions who would like to request reasonable accommodations and services must register with SAS.

Note to Students:
After you register with the Office of Student Accessibility Services each term and are informed of your designated accommodations, please contact me to discuss and develop a plan for the use of your accommodations. Note that although it is your decision to use any and all of the applicable accommodations throughout the term, you **must converse** with me to clarify your plan of use and coordinate the appropriate resources in advance.

Confidentiality and Mandatory Reporting
All forms of discrimination based on sex, including sexual misconduct, sexual assault, dating violence, domestic violence, and stalking offenses, are prohibited under NCCU's Sexual Misconduct Policy (POL 01.04.4). NCCU faculty and instructors are considered to be *responsible employees* and are required to report information regarding sexual misconduct to the University's Title IX Coordinator. The Sexual Misconduct Policy can be accessed through NCCU's Policies, Rules and Regulations website. Any individual may report a violation of the Sexual

Misconduct Policy (including a third-party or anonymous report) by contacting the Title IX Coordinator at (919) 530-7944 or TitleIX@nccu.edu, or submitting the online form.

Other Campus Programs, Services, Activities, and Resources
Other campus resources to support NCCU students include:
- Student Advocacy Coordinator. The Student Advocacy Coordinator is available to assist students in navigating unexpected life events that impact their academic progression (e.g., homelessness, food insecurity, personal hardship) and guide them to the appropriate University or community resources. Contact Information: Student Services Building, Room G19, (919) 530-7492, studentadvocacy@nccu.edu.
- Counseling Center. The NCCU Counseling Center is staffed by licensed psychologists and mental health professionals who provide individual and group counseling, crisis intervention, substance abuse prevention and intervention, anger management, and other services. The Counseling Center also provides confidential resources for students reporting a violation of NCCU's Sexual Misconduct Policy. Contact Information: Student Health Building, 2nd Floor, (919) 530-7646, counseling@nccu.edu.
- University Police Department. The University Police Department ensures that students, faculty and staff have a safe and secure environment in which they can live, learn, and work. The Department provides a full range of police services, including investigating all crimes committed in and around its jurisdiction, making arrests, providing crime prevention/community programs, enforcing parking regulations and traffic laws, and maintaining crowd control for campus special events. Contact Information: 2010 Fayetteville Street, (919) 530-6106, nccupdinfo@nccu.edu.

Ethical Standards
Universities are unique communities committed to creating and transmitting knowledge through the freedom individuals have to explore ideas and to further their own capabilities. This freedom depends on the responsible behavior of all the members of the community who must treat each other with respect. They must allow each other to develop the full range of their capabilities and take full advantage of the institution's resources. Students are expected to abide by the University academic integrity policy. Do not receive or give any assistance on tests or projects unless specifies by the instructor. For further information regarding academic integrity, academic dishonesty, cheating, plagiarism, and sanctions, refer to the Student Code of Conduct.

Students are also expected to adhere to the Ethical standards of the American Counseling Association (ACA) and Association of American Educators (AAE). If you have not already familiarized yourself with ACA or AAE Ethical standards and the Universities policies on academic integrity, it is recommended that you do so:
- AAE Code of Ethics for Educators
- ACA Code of Ethics for Counselors

Plagiarism and Academic Integrity
North Carolina Central University is dedicated to instilling in its students the highest principles of integrity and responsibility. Students are expected to demonstrate respect for these principles in the performance of their academic activities. Academic dishonesty, which is a violation of academic integrity, will be dealt with according to the provisions of the Student Code of Academic Conduct. ([Academic Honor Code](#))

Generative Artificial Intelligence
Generative Artificial Intelligence (AI e.g. ChatGPT and other Chatbots) is a powerful tool in working with data, information, text, and other materials. It is an important tool to understand and learn to apply in professional workflows. **Turning in complete texts generated by Generative Artificial Intelligence (e.g. ChatGPT and other AI Chatbots) as your own is academic dishonesty**, including in terms of both fabrication and plagiarism, but conversely AI tools are powerful ways to enhance your writing, from generating structures, questions, and prompts, to editorial review. Students are fully responsible for writing submitted under their name and **citing AI when used to support their work**.

Attendance
Participation in this online occurs through assignment submission. Note that all work should be subitted by the posted deadlines. Students who do not participate during the first week of class will be dropped due to non-attendance. You must submit at least one assignment (i.e. *Intent to Participate* assignment) during the first week of class to confirm your attendance in the course. Students who do not participate before the 10-day census date will be dropped. After the census date (the 10th day of class), any student who does not participate in the equivalent of two (2) weeks of class engagement or 13.3% of total instructional time prior to the determined drop date for the university (as noted in the Academic Calendar) will receive an automatic grade of WA (withdrawal due to lack of attendance) at the point of the withdrawal date. This will be the final grade for the grading period. This grade will automatically be entered by the faculty member teaching the course.

Special consideration will be granted if a student has accommodations as required by the Americans with Disabilities Act based on a documented disability or another documented need. Special consideration may be granted if a student is absent or late due to the student's participation in a University-sponsored program or event.

After the University's established withdrawal date, as noted in the Academic Calendar, you will earn the letter grade commensurate with your course performance. Your final grade will be based on your performance and participation, to include attendance as noted in the syllabus.