

North Carolina Central University - University Motto: "Truth and Service"

NCCU School of Education – H.M. Michaux, Jr. Building

Conceptual Framework:

*"Preparing Educators for Diverse Cultural Contexts in the 21<sup>st</sup> Century"*

Department of Educational Leadership

*"Preparing School Leaders for Diverse Cultural Contexts and as Advocates for Social Justice in the 21<sup>st</sup> Century"*

QEP Theme – Communicating to Succeed

Fall 2018 – Course Syllabus

## EDGR 5910 - Introduction to Statistical Methods in Education

Andrew Jackl, Ph.D., Adjunct Professor

### Contact Information

**Office Phone:** (919) 533-7731 or (919) 884-6331 (cellular) **Classroom:** School of Education Rm. 1079

**Email:** [ajackl@wcpss.net](mailto:ajackl@wcpss.net) or [ajackl@nccu.edu](mailto:ajackl@nccu.edu) **Face-to-Face Class Time:** Tuesdays 7:00 – 9:30 PM

**Office Hours:** Tuesdays, Room 1079, 6:00 PM to 7:00 PM, and by appointment.

### Course Description (EDGR 5910):

*Introduction to Statistical Methods in Education* is a graduate-level course in applied statistics relevant to education and social sciences. The course topics will include descriptive statistics, inferential statistics, and research designs, as well as data analysis using inferential statistical procedures. Candidates will compile, analyze, and interpret data in a culminating final paper. The course will prepare candidates to use statistical tools for making data-based decisions, and acquired skills will be directly applicable in multiple career fields.

### Course Expectations:

*Introduction to Statistical Methods in Education* is a participatory, learning-centered course in which each member of the class is a learner and a teacher, a valuable source of knowledge, and is expected to contribute to the intellectual climate by elevating the level of inquiry and challenge in the course.

### Required Textbook:

Gravetter, F.J. & Wallnau, L.G. (2013). Statistics for Behavioral Sciences (9th edition) by Wadsworth, Cengage Brain (ISBN 1133395716).

Additionally, various supplemental readings (mostly short) will be distributed by the instructor.

**Foliotek Statement:** Maintaining an electronic portfolio (i.e., 'Foliotek') is a REQUIREMENT for continued enrollment as a degree-seeking student in the School of Education at North Carolina Central University. You MUST maintain a Foliotek account while enrolled in the MSA Program, and you will be required to upload six capstone electronic evidences to the system. The university will use the information to track data and verify that you have met the competencies of your program of study – but more importantly – this system will serve as documentation of your proficiency in the standards for school executives and eligibility for licensure.

## Course Goals

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, and (3) inferential statistics, tests of significance (z, t, r, chi-square, etc.). Upon completing the course, students are expected to be able to calculate basic statistical tests, describe the statistical concepts examined in the course, and design and interpret research studies within their professional fields.

## Student Learning Outcomes (SLO's)

Upon completion of this course, candidates will be able to:

1. Describe the meaning of major statistical concepts both verbally and computationally;
2. Compute frequencies, central tendency, variability, probability, z-score, t-tests (the one sample, two independent samples, and two related samples), correlations, and chi-square;
3. Conduct a hypothesis test using appropriate statistical procedures and understand the limitations of significance testing;
4. Design research studies using the t, r, and chi-square statistics;
5. Analyze data using statistical software and make data-based decisions;
6. Evaluate the quality, relevance, and utility of published educational research studies;
7. Become well-prepared for additional coursework in applied research methodologies.

## Topics to be covered:

- A) Introduction to Educational Research
- B) Reviews and Critiques
- C) Sampling and Testing
- D1) Quantitative Research Methods
- D2) Qualitative Research Methods
- E) Surveys, Interviews, and Observations
- F) Statistical Analysis
- G) Experimentation
- H) Follow-up and Practical Applications

## Assignments:

Three in-class exams, taken without books or notes @ 25 points each = 75 percent of grade  
One written paper (research article critique) @ 15 points = 15 percent of grade  
Class participation and punctual attendance @ 10 points = 10 percent of grade

Additional information about the written paper will be distributed by the instructor.

## Evaluation & Grading Scale:

90 to 100 = A	
80 to 89 = B	<i>Time will pass.</i>
70 to 79 = C	<i>Will you?</i>
Below 70 = F	

## Satisfactory Progress and Academic Dismissal

When a student's cumulative grade point average falls below 3.0, s/he is automatically put on academic probation for up to one calendar year. During that year, the student is to maintain contact with the Advisor, Department Chair, and/or the Associate Dean for graduate programs in the School of Education for advice and assistance. Failure to raise the cumulative grade point average to 3.0 within one calendar year will be cause for dismissal from your program of study.

If a student receives a grade of "C" in a course, s/he should meet with their advisor to develop a support plan before the next semester. A student who receives a grade of "F" or two "Cs" may not continue in graduate school unless his/her Department Chair submits in writing an acceptable recommendation to the Dean of the School of Education. If a student fails (earns a "C" or "F") a second time, s/he is dismissed from the degree program. The student may appeal the dismissal to the Graduate Council through the Dean of the School of Education.

## Academic Integrity

As a center of learning, teaching, and research, North Carolina Central University charges its members, including students, to maintain patterns of behavior that enable these essential functions.

## Academic Dishonesty Defined

*Academic Dishonesty* is defined as any conduct that is intended by the student to obtain for him/her or for others an unfair or false evaluation in connection with any examination or other work for academic credit. Cheating, fabrication, plagiarism, and complicity are examples of conduct that is academically dishonest.

*Cheating* is the unauthorized use of materials in connection with an examination or other work for academic credit, including, but not limited to:

- The use of books, notes, outlines, etc. during an examination where the instructor has not authorized use of such materials or information;
- Seeking unauthorized materials or information from others in connection with an examination;
- Giving or attempting to give unauthorized assistance to another person in connection with an examination;
- Obtaining or attempting to obtain unauthorized copies of examinations;
- Copying or attempting to copy from the work of another student during an examination;
- Bringing to an examination, or attempting to use during an examination, unauthorized answers which have been prepared prior to the examination; and
- Submitting for evaluation in a course, part or the whole of a work for which credit has been given previously.

*Fabrication* is the invention, counterfeiting, and/or alteration of quoted passages, data, procedures, experiments, sources, or other information in connection with any academic exercise.

*Plagiarism* is the use of the ideas, words, or works of another without attribution when the information provided is not common knowledge either in content or form and includes, but is not limited to:

- Quoting from the published or unpublished work of another without appropriate attribution;
- Paraphrasing or summarizing in one's own work any portion of the published or unpublished materials of another without attribution; and
- Borrowing from another's work, data, and facts that are not in the domain of common knowledge.

*Complicity* is the giving of assistance or the attempt to give assistance to another for the purpose of perpetrating academic dishonesty.

## **Confidentiality**

Your experiences are an important part of your learning and you will be discussing them in this course. Please respect the privacy and dignity of the children and families with whom you work and use discretion. In casual conversations or social situations, do not relate stories from classrooms or schools that might be embarrassing to teachers or students, or that include sensitive information about a child or family. When discussing classroom situations in class, do so carefully. Mask the name of the student on any written or visual work shared in class or used in an assignment. If discussing teaching practice you have observed, be mindful of maintaining a tone of professional courtesy.

## **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) and 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.

## **Attendance Policy**

Attend class and be on time. Faithful, prompt attendance is expected for all regular class meetings in accordance with the University's graduate class attendance policy. Absences and tardiness are not acceptable for future executives. A candidate can be dropped from the class roll when the candidate has been absent from class for the number of class meetings that equal a two weeks period. Time missed from class due to undocumented emergencies and illnesses, late arrivals, and early departures from class of more than 15 minutes are considered absences. Candidates representing the University on official business, which will require absences beyond the two-week period, must make pre-arrangements to be absent from the classes at the specific request of their university sponsor.

## **Cell Phone:**

Cell phones and pagers should be silenced or turned off during class time.

**Food and Drinks:**

No food or drinks are allowed in computer labs, rooms with computers, or the Curriculum Media Center.

**Recording Lectures:**

Recording lectures (audio or video) is strictly prohibited.

**Student Disability Services**

Students with disabilities (physical, learning, psychological, chronic medical, etc.) who would like to request accommodations and services are required to register with the Office of Student Disability Services (SDS) in Suite 120 in the Student Services Building. Please contact the SDS Staff at (919) 530-6325 or email [sds@nccu.edu](mailto:sds@nccu.edu). If you are new to SDS, please contact the office for an appointment. If you had accommodations previously, you can resubmit a request by visiting our website at [www.nccu.edu/sds](http://www.nccu.edu/sds) and click the **Accommodate** link. Students are expected to update their accommodations each semester, preferably during the first two weeks of each semester.

**Student Support / Ombudsperson**

The Student Ombudsperson is available to assist students in navigating unexpected life events. (e.g., short-term illness/injury, loss of a loved one, personal crises) and guide them to the appropriate university or community resources. Students may also receive assistance with resolving some emergency financial concerns, understanding NCCU policies, or general problem-solving strategies. Schedule an appointment by contacting the Student Ombudsperson in the Office of the Dean of Students, G-06 Student Services Building, at 919 530-7492 or [bsimmons@nccu.edu](mailto:bsimmons@nccu.edu).

**Writing Studio:**

Dr. Karen Keaton Jackson, Director, [kkjackson@nccu.edu](mailto:kkjackson@nccu.edu) , (919) 530-7554  
339 Farrison-Newton Communications Building, [writingstudio@nccu.edu](mailto:writingstudio@nccu.edu)

**Email:**

All candidates are expected and required to use their NCCU email addresses for communication with faculty and the university. Please check your email frequently, and at least 30 minutes before every class.

**Inclement Weather and Unpredictable Events:**

If weather conditions lead the NCCU administration to decide to cancel classes, our class will not meet. Call the Academic Affairs Office at (919) 560-6230 or listen to 90.7 FM if you want to verify any cancellations. If the instructor must miss class because of an emergency, you will be notified via email as soon as possible. You will be expected to use the scheduled class time to work on class assignments or evaluation requirements.

*Students are encouraged to sign up for Eagle Alerts on the NCCU Emergency webpage.*

## Tentative Course Schedule

- Topic A:** Introduction to Educational Research  
**Topic B:** Reviews and Critiques  
**Topic C:** Sampling and Testing  
**Topic D:** Quantitative (Part I) and Qualitative (Part II) Research Methods  
**Topic E:** Surveys, Interviews, and Observations  
**Topic F:** Statistical Analysis  
**Topic G:** Experimentation  
**Topic H:** Follow-up and Practical Applications

<b>Date</b>	<b>Topic</b>	<b>Reading Assignment</b>
T Aug 14	Course Overview Begin Topic A	Chapter 1, Introduction to Statistics
T Aug 21	Finish Topic A Topic B	Chapter 2, Frequency Distributions Chapter 3, Measures of Central Tendency
T Aug 28	Topic C	Chapter 4, Variability
T Sept 4	NO CLASS – SUPPLEMENTAL ASSIGNMENT TO BE COMPLETED AT HOME	
T Sept 11	Topic C	Chapter 7, Distribution of Sampling Means
T Sept 18	Topic D, Part I <b>Exam # 1, Topics A-C</b>	Chapter 5, z-scores
T Sept 25	Topic D, Part II	Chapter 6, Probability
T Oct 2	Topic E, Part I	Chapter 9, Introduction to the <i>t</i> -statistic
T Oct 9	Topic E, Part II	Chapter 17, Chi-Square
T Oct 16	NO CLASS – NCCU FALL BREAK	
T Oct 23	Topic F, Part I <b>Exam # 2, Topics D-E</b>	Chapter 10, <i>t</i> -test for Independent Samples
T Oct 30	Topic F, Part II	Chapter 11, <i>t</i> -test for two related samples
T Nov 6	Topic G, Parts I & II	Chapter 8, Introduction to Hypothesis Testing Chapter 15, Correlation
T Nov 13	Topic H	
T Nov 20	Scheduled Final Examination Day – 7:00 – 9:30 pm <b>Exam # 3, Topics A-H – strong emphasis given to Topics F, G, &amp; H</b> <b>Article Critiques Due</b>	
F Nov 30	Final Grades Posted in Banner by 5:00 PM	

**Note:** The last day to withdraw from the course with a grade of WC is Friday, October 5, 2018.