I. COURSE PURPOSE
This course is the first course of two required courses in social work research for social work majors. It is designed to introduce undergraduate students to the research process used by social workers and other social scientists in the context of engaging in basic statistical analyses. The major goal of this course is to gain statistical literacy while learning to appreciate ethical standards and behavior expected for conducting social work research and the role of statistical analysis within research methodology. Empirical data and numerical arguments are present in everyday life and are part of social work practice context upon which practice related decisions are made.

Statistical literacy, therefore, is an essential skill that enables students to understand (becoming an informed consumer) and make rational decisions (becoming an informed producer) based on the analysis of numerical information. Emphasis is placed on building analytical skills and interpretation of findings with consideration of their implications for social work practice, policy, or future research. The course uses both a lecture format to promote student discussion on selected topics and computer-based application for statistical analysis skill building. Students use the statistical package SPSS to analyze quantitative data, employing descriptive and inferential (parametric and nonparametric) statistics to explore and analyze different research questions underpinning different social problems.

II. EDUCATIONAL OBJECTIVES
Upon successful completion of this course, students are expected to be able to:

1. Recognize links between research methodological concepts and the process of conducting statistical analysis in social work practice.
2. Demonstrate an understanding of commonly accepted national ethical standards used for the assessment of actions related to research involving human subjects.


4. Recognize the importance of Social Work Code of Ethics in carrying out research in social work practice.

5. Recognize relevant statistical analytical approach for research problem and the type of data under consideration.

6. Describe the process of coding quantitative data and analytical methods available for describing and comparing data.

7. Describe and demonstrate the use of graphs and charts in presenting data.

8. Demonstrate basic skills in conducting descriptive statistical analysis and the interpretation of results in the context of social work practice.

9. Demonstrate basic skills in conducting inferential statistical analysis and the interpretation of results in the context of social work practice.

10. Demonstrate an understanding of probability related to normal distribution curve, its relationship to tests of significance for assessing differences between group-based results, and the relevance and limitations of using statistical significance of tests in the practice context.

III. COURSE REQUIREMENTS

A. Required Texts


B. Course Skill-Building

The course uses four assignments, four tests, and assigned homeworks and class discussion to meet the objectives of this course and develop student competence.

Assignments

- All assignments are take-home assignments which are due on specified dates with no exceptions.

- Ten percent (10%) will be deducted from any assignment which is submitted late without permission from the instructor. Please note that a permission to change a due
date for any assignment must be obtained prior to the original due date! Assignments will not be accepted after they have been reviewed in class.

- All assignments are to be uploaded onto BB when they are due.

- Please note that anyone who does not upload assignment 3 onto BB before class 24 will not be admitted on that day to this assignment review in class (11/13/14)!

Schedule for Assignments Due Dates:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Class</th>
<th>Due Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>12</td>
<td>10/2/14 (Thursday)</td>
<td>Due By Midnight.</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20</td>
<td>10/30/14 (Thursday)</td>
<td>Due By Midnight.</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>24</td>
<td>11/13/14 (Thursday)</td>
<td>Due Before Class.</td>
</tr>
<tr>
<td>Assignment 4</td>
<td>Exam Week</td>
<td>12/9/14 (Tuesday)</td>
<td>Due by Noon.</td>
</tr>
</tbody>
</table>

Tests

- All tests are in-class written closed book/notes tests. Tests are based on the contents assigned by the instructor. The contents will be in a written form presented as short questions for “fill-in answers,” with “matching” or “multiple-choice” answers. These tests usually take up almost the entire class time.

- On the rare occasion, if a student is unable to take a given test on the scheduled date, he/she must notify the instructor as soon as possible in order to make alternate arrangements. Missing a test may result in a grade F.

- Make-ups can be given at the discretion of the instructor.

- Please do note that “arriving late” for a test is highly disruptive and may result in a lowered grade by 10% unless you notify the instructor ahead of time.

- Please also note that not taking a test on the scheduled date without a prior written explanation to the instructor and explicit permission from the instructor results in an assigned grade of “Failure” (F).

- For testing accommodation: Students with physical, learning, or other disabilities wishing to request accommodations must 1) meet with the Disability Support Services (DSS) office at CUA and 2) submit a written documentation of a disability to the instructor. It is the responsibility of the student to begin the process to seek any accommodations. More information can be obtained from the Disability Support Services website at http://dss.cua.edu/.

  o If a student wishes to pursue testing accommodation, he/she must present written documentation from the DSS Office at CUA to the course instructor prior to making the testing arrangements.

  o Assistive learning devices authorized by the Disability Support Services (DSS) Office are welcome in the classroom and should be used in a manner consistent with the formal learning assessment recommendations provided by that office. The student is expected to provide the instructor with a written documentation from DSS authorizing the use of the device during classes.
Schedule for Tests Dates in Class
Test 1: Class 5 9/9/14 (Tuesday)
Test 2: Class 14 10/9/14 (Thursday)
Test 3: Class 25 11/18/14 (Tuesday)
Test 4: Last Class 12/04/14 (Thursday)

Homework
To strengthen statistical knowledge and analytical skill building benefits by frequent homework practice. Hence, many classes have assigned brief homework (posted on BB in individual class folder) for practicing skills to develop critical thinking and problem solving competencies. These brief homeworks are not individually graded, but each completed and posted homework on BB receives 1-point and counts toward the computation of the course grade.

C. Grading Policy
Total course grade is based upon the following areas of competence:
   Attendance and participation 10%
   Homework completion 10%
   Assignments (4) 40%
   Tests (4) 40%

D. Course and Instructor Evaluation
NCSSS requires electronic evaluation of this course and the instructor. At the end of the semester, the evaluation form may be accessed at http://evaluations.cua.edu/evaluations using your CUA username and password. Additional informal written or verbal feedback to the instructor during the semester is encouraged and attempts will be made to respond to requests.

E. Class Attendance and Participation
Students are expected to attend and participate meaningfully in class discussions. Being on time for class, meaningfully participating in class discussion or responding to questions, thoughtfully expressing one’s opinion or point of view, and attentively managing one’s seating space without disturbing others are examples of effective professional behavior.

Being late for class is considered a disruptive behavior, and therefore, each time a student is late, the instructor may deduct 1% from the grade for attendance and participation, unless the professor is notified in advance.

Unexcused absences are considered detrimental to student learning, and therefore, please note that any unexcused absence will result in 2% deduction from the grade for attendance and participation unless the student notifies the instructor and request an excused absence prior to the class meeting class.
Absence for athletic participation at CUA requires prior notification to the course instructor. Please note that students participating in CUA athletic sport activities must notify the instructor in a timely manner of any potential absences from class; provide written documentation of their athletic participation; and plan ahead for any potential class absences. Absences without prior notification to the instructor are considered unexcused absences! Students are responsible for making up any missed work as normally expected in the course class schedule.

Recording of classroom lectures is prohibited unless advance written permission is obtained from the class instructor and any guest presenter(s). Students who require recording or other adaptations of lectures as a reasonable accommodation for a disability should contact the Office of Disability Support Services (DSS) in advance of the class in order to obtain permission for the recording and must provide the instructor with a written documentation.

Use of personal electronic devices during class time is prohibited (e.g., cell phones, ear-cell phones, ipods, ipads, laptops, or music and other such sound-making devices). It is expected that all personal electronic devices will be silenced during class time. Please note that the instructor may confiscate the disruptive device after one warning for the duration of class time. Any subsequent disruption may result in device confiscation plus 5% reduction in the total grade for class attendance and participation. The University has instituted a policy on recording of classroom lectures, which may be accessed at: [http://policies.cua.edu/academicgrad/recordingclassroomlecturesgraduate.cfm](http://policies.cua.edu/academicgrad/recordingclassroomlecturesgraduate.cfm).

Use of provided classroom computers is restricted to specified class content activities. Since this class takes place in a computer-based lab-room, please do note that all students are expected to refrain from instructor unauthorized use of the provided computers and any emailing, game playing, surfing the web, or other non-academic uses of the computer are not acceptable during class. Any authorized use of classroom computers during class after one warning may result in 5% reduction in the total grade for class attendance and participation.

On a rare occasion - emergency situation, the student - message recipient may leave the classroom in order to respond to the emergency situation using the personal electronic device, and the return when the immediate situation has been addressed, and notify the instructor as soon as possible. Addressing more than two “emergency phone related situations” during a semester is considered disruptive, and may result in 5% reduction in the total grade for class attendance and participation.

IV. CLASS EXPECTATIONS

A. Scholastic Expectations

Please refer to NCSSS Announcements or appropriate Program Handbook for Academic Requirements, including scholastic and behavioral requirements. All written work should reflect the original thinking of the writer, cite references where material is quoted or adapted from existing sources, and adhere to the APA style of writing format. Students
are expected to carefully proofread all of their written work before submission to the instructor for grading.

B. Academic Honesty
Joining the community of scholars at CUA entails accepting the standards, living by those standards, and upholding them. Please refer to University Policy and appropriate Program Handbook.

C. Accommodations
Students wishing to request accommodations during their course participation or testing must first make a contact with the Disability Support Services (DSS) and submit documentation of their disability to the course instructor. DSS office provides instructions how to document disability or what information is needed: http://dss.cua.edu/.

For students with a documented disability from DSS and who seek academic accommodations for testing or assignments or class participation, please arrange a meeting with the course instructor as soon as possible in order to discuss and make appropriate arrangements for these accommodations. Please note that all accommodation arrangements for testing or when assignments are due must be completed prior to the actual course testing or assignment due date (typically at least week or so in advance!).
WEEK 1

CLASS 1  RESEARCH IN THE CONTEXT OF SOCIAL WORK PRACTICE.  
8/26 (Tu)  Review course syllabus and structure of assignments, and tests  
Research as a source of knowledge.  
Distinctions of scientific research and its process.  
Context of statistics in research.  
Why do social work research?  
What kinds of questions do social workers ask?  
What is your special interest in social work? 

Reading Assignment: 
Dudley: Chapter 1: Why social workers need research

CLASS 2  DIFFERENT TYPES OF RESEARCH  
8/28 (Th)*  Conducting research in diverse contexts or perspectives.  
Common steps in developing a research study.  
Inductive and deductive philosophies guiding research development.  
Distinctions between quantitative, qualitative, mixed, participatory, feminist, and Afrocentric research. 

* Mass of the Holy Spirit begins at 12:10 p.m.

Reading Assignment: 
Dudley: Chapter 2: Philosophies and perspectives about research

Homework 1: Practice exercises: Posted on BB – Due Sunday midnight: Upload to BB

WEEK 2

CLASS 3  ETHICAL BEHAVIOR WITH HUMAN SUBJECTS.  
9/2 (Tu)  Introduction to ethical standards and safeguards in research.  
Principles of respect for persons, beneficence, and justice.  
Mandates of Social Work.  
Internal Review Board.

Reading Assignment: 
Dudley: Chapter 3: Research ethics and social work mandates

- Visit a website: [http://ohsr.od.nih.gov/guidelines/index.html](http://ohsr.od.nih.gov/guidelines/index.html) and become familiar with the Belmont Report!

CLASS 4  LINKING RESEARCH AND STATISTICS.
9/4 (Th) Constructing and measuring a variable.
Quantitative versus qualitative approach to observation and measurement.
Levels of variable measurement.
Linking measurement to statistics.
Differentiating between descriptive and inferential statistics.
Opening SPSS: Enter or save data, export into WORD document (Practice SPSS practice exercise pages 2-9.

Reading Assignment:
Dudley: Chapter 5: Defining and measuring concepts (p. 76-91)
Salkind: Chapter 1: Statistics or sadistics?
Cronk: Chapter 1: Getting started and Chapter 2: Entering and modifying data

Homework 2: Prepare for Test 1: Take an ungraded practice Test 1 (posted on BB) and submit by it by Saturday midnight 9/6/14 – answers will be made available Sunday 9/7/14.

WEEK 3

CLASS 5  TEST 1  (IN CLASS)
9/9 (Tu)

Homework 3a: Use a computer with SPSS software at CUA
Practice SPSS – Cronk book: page 127:
(a) Enter data in practice data set 1 and save this data on your portable drive as a SPSS data-file as SSS 340_YourLastName_PracticeData 1;

(b) Go back into your SPSS data-file and “under Analyze Command on the top task-bar” run Frequencies for categorical variables “sex” and “marital” and then save/export the output file as a WORD document-file onto your “portable drive” as SSS340_LastName_HW3a;

(c) Re-open your saved WORD document-file and enter your full name in the top header on the left of this document, and re-save it again on your portable drive – please bring your portable drive to Class 6 for further in-class exercises!

CLASS 6  STARTING TO USE STATISTICS
9/11 (Th) Understanding measures of central tendency or averages.
Computing the mean, median, and mode.
Levels of variable measurement.
Selecting and differentiating measures of central tendency.
Weighted mean, median from grouped data.

**Reading Assignment:**
Salkind: Chapter 2: Means to an end
Cronk: Chapter 3: Descriptive statistics, Sections 3.1-3.4

Homework 3b: On BB - Due Sunday midnight: Upload to BB

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**WEEK 4**

**CLASS 7**
**CONTINUING: MEASURES OF CENTRAL TENDENCY**
**9/16 (Tu)**
Problem-solving with descriptive statistics.
Using SPSS.

**Reading Assignment:**
Salkind: Chapter 2: Means to an end
Cronk: Chapter 3: Descriptive statistics, Sections 3.1-3.4

**CLASS 8**
**UNDERSTANDING STATISTICAL VARIABILITY.**
**9/18 (Th)**
Variability as a descriptive tool.
Computing the range, variance.
Standard deviation –unbiased estimate for a sample.
Effect of outliers on means.
Measurement issues with diverse populations.
Using SPSS.

**Reading Assignment:**
Salkind: Chapter 3: Vive la difference
Cronk: Chapter 3: Descriptive statistics, Sections 3.1-3.4

Homework 4: On BB

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**WEEK 5**

**CLASS 9**
**ILLUSTRATING DATA WITH GRAPHS AND CHARTS.**
**9/23 (Tu)**
Group data frequency distribution
Finding a median score in a group frequency distribution.
Bar charts, line charts, and pie charts.
Histogram, frequency polygon.
Reading Assignment:
Salkind: Chapter 4: A picture really is worth a thousand words
Cronk: Chapter 4: Graphing data, Section 4.2 : Using the “Legacy Dialogue” command and computing Bar graphs, Histogram, Pie chart, and Frequency polygon.

CLASS 10 CONTINUING: ILLUSTRATING DATA WITH GRAPHS AND CHARTS.
9/25 (Th)
Clustered bar graphs.
Scatter plots.
Box plot, median, and interquartile range.
Using SPSS.

Reading Assignment:
On BB: Information on Box plots and their meaning.

Homework 5: On BB

** Handout – ASSIGNMENT 1: Due Thursday, 10/2/14

WEEK 6

CLASS 11 ANALYTICAL DECISIONS: BIVARIATE CORRELATION.
9/30 (Tu)
Computing a correlation for 2 variables.
Pearson product moment correlation.
Spearman rho correlation.
Interpreting the relationship – direction, magnitude, and percent of variance explained in the Pearson correlation result.
Creating a scatter plot.
Using SPSS.

Reading Assignment:
Salkind: Chapter 5: Ice cream and crime
Cronk: Chapter 4: Graphic data, Section 4.4 and Chapter 5: Prediction and association, Sections 5.1 and 5.2

CLASS 12 CORRELATION IN INSTRUMENT RELIABILITY AND VALIDITY.
10/2 (Th)
Level of variable measurement.
Differentiating concepts of validity and reliability in measurement.
Differentiating types of validity in instrument measurement
Differentiating types of reliability in instrument measurement.
Using SPSS for computing Cronbach’s alpha and Inter-rater reliability.

Reading Assignment:
Dudley: Chapter 5: Defining and measuring concepts (p. 91- 104)
Salkind: Chapter 6: Just the truth

** DUE: ASSIGNMENT 1 - Due: By Midnight Upload to BB.**

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**WEEK 7**

**CLASS 13**  **UNDERSTANDING DATA IN A RESEARCH STUDY CONTEXT.**

10/7 (Tu)  Differentiating descriptive, exploratory, explanatory studies.
Independent vs. dependent vs. extraneous variables.
Developing research questions vs. hypotheses.
Differentiating correlational vs. causal variable relationship.

**Reading Assignment:**
Dudley: Chapter 6: Focusing a research study
Salkind: Chapter 7: Hypotheticals and you

**CLASS 14**  **TEST 2**  (IN CLASS)

10/9 (Th)

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**WEEK 8**

**CLASS 15**  **NO CLASS: ADMINISTRATIVE TUESDAY**

10/14 (TU)  – MONDAY CLASSES MEET

**CLASS 16**  **UNDERSTANDING NORMAL DISTRIBUTION OF DATA.**

10/16 (Th)  Probability of data distribution.
Understanding the Normal curve and its dimensions
Using the Normal curve proportions, percentages, in applications.
Recognition of data normality using mean and median.
Standard scores – zscores and their use.
Computing zscore in SPSS.

**Reading Assignment:**
Salkind: Chapter 8: Are your curves normal?
Cronk: Chapter 3.5: Standard scores

**Homework 6:** On BB
WEEK 9

CLASS 17  STARTING INFERENTIAL STATISTICS.
10/21 (Tu)  Understanding the concept of statistical significance (p-value).
Using normal distribution for determining statistical significance.
Type 1 vs. Type 2 error.
Test statistic and significance: Obtained test result value vs. critical value.
Confidence interval.

Reading Assignment:
Salkind: Chapter 9: Significantly significant

CLASS 18  USING TESTS: ONE-SAMPLE Z TEST.
10/23 (Th)  When to use one sample z-test.
Computing and interpreting z-value.
Understanding standard error of the mean.
Obtained z-value vs. critical z-value.
Using SPSS.

Reading Assignment:
Salkind: Chapter 10: Only the lonely

Homework 7: On BB

** Handout – ASSIGNMENT 2: Due Thursday 10/30/14

WEEK 10

CLASS 19  COMPARING MEANS OF 2 UNRELATED PARAMETRIC GROUPS.
10/28 (Tu)  Parametric test: Independent samples t-test.
Computing the t-value.
Degrees of freedom (df) and sample size.
Understanding Levene’s test for equality of variances between groups.
Interpreting t-test with p-value of statistical significance.
Figuring out effect size.
Using SPSS.

Reading Assignment:
Salkind: Chapter 11: t(ea) for two
Cronk: Chapter 6: Parametric inferential statistics, Section 6.3

Homework 8: On BB
CLASS 20  COMPARING MEANS OF 2 UNRELATED NON-PARAMETRIC GROUPS.
10/30 (Th) Nonparametric test: Mann-Whitney U test.
When to use parametric vs. non-parametric test.
Computation of Mann-Whitney U test.
Using SPSS: Analyze, non-parametric tests, Legacy Dialogues.

Reading Assignment:
On BB: Reading on Mann-Whitney U test

** DUE: ASSIGNMENT 2 - Due: By Midnight Upload to BB.

WEEK 11

CLASS 21  COMPARING MEANS OF RELATED GROUPS.
11/4 (Tu) Parametric test: Dependent samples t-test.
Non-parametric: Wilcoxon Signed Rank test.
Computations and interpretation of results.
Figuring out effect size.

Reading Assignment:
Salkind: Chapter 12: t(ea) for two (again)
Cronk: Chapter 6: Parametric inferential statistics, Section 6.4
On BB: Reading on Wilcoxon test

** Handout – ASSIGNMENT 3 (Covers Classes 18-23): Due Before Class 24!

CLASS 22  COMPARING MEANS OF 3 + UNRELATED PARAMETRIC GROUPS.
11/6 (Th) Simple analysis of variance (ANOVA).
Levene’s test, variance, and results.
Post-hoc multiple comparison tests.
Computing the F statistic.
Using SPSS and interpreting results.

Reading Assignment:
Salkind: Chapter 13: Two groups too many?
Cronk: Chapter 6: Parametric inferential statistics, Section 6.5

Homework 9: On BB
WEEK 12

CLASS 23  USING TESTS: REVIEW OF PEARSON CORRELATION TEST R.
11/11 (Tu)  Review of Pearson bi-variate correlation test r.
Logic of prediction in simple bi-variate linear regression.
Logic of prediction in Multiple Regression Analysis (MRA).
Problem solving application.
Computing and interpreting results in SPSS.

Reading Assignment:
Salkind: Chapter 15: Cousins or just good friends? and Chapter 16: Predicting who will win the super bowl
Cronk: Chapter 5, Prediction and association, Sections 5.1-5.3

CLASS 24  PREPARATION FOR TEST 3 – CLASS PRACTICE
11/13 (Th)  Review of Assignment 3 in class!

** DUE: ASSIGNMENT 3 – Upload before class!
** PLEASE NOTE: Anyone who does not upload the assignment #3 prior to class will not be admitted to class review!

WEEK 13

CLASS 25  TEST 3 (IN CLASS)
11/18 (Tu)

CLASS 26  TESTING A FREQUENCY ASSOCIATION BETWEEN VARIABLES.
11/20 (Th)  Understanding the chi-square test.
Computation and interpretation of results.
SPSS application.

Reading Assignment:
Salkind: Chapter 17: What to do when you are not normal
Cronk: Chapter 7: Nonparametric inferential statistics, Section 7.1

Homework 10: On BB
WEEK 14

CLASS 27  TESTING FREQUENCY ASSOCIATION BETWEEN VARIABLES.
11/25 (Tu)  Class practice using chi-square analysis.

Reading Assignment:
Salkind: Chapter 17: What to do when you are not normal
Cronk: Chapter 7: Nonparametric inferential statistics, Section 7.2

CLASS 28  NO CLASS: HAPPY THANKSGIVING!
11/27 (Th)

WEEK 15

CLASS 29  CLASS PRACTICE REVIEW FOR TEST 4
12/2 (Tu)  Exercises provided by the instructor

** Handout – ASSIGNMENT 4 (Instructions on BB): Due Tuesday, 12/9/14 – upload onto BB (located under Assignment link)

CLASS 30  TEST 4 (IN LAST CLASS)
12/4 (Tu)

** DUE: ASSIGNMENT 4 – Upload to BB by Noon!

THANK YOU.

HAPPY WINTER HOLIDAYS AND HAPPY NEW YEAR OF 2015!