SYLLABUS

*Preparing the Experienced Professional as Specialist*

College of Education and Professional Development

**COURSE**: EDF 676 Statistical Methods

**INSTRUCTOR:** Edna M. Meisel, Ed.D.

**Office:** Room Jenkins Hall 203, Marshall University, Huntington, WV

**Office Hours:** I am usually on the Huntington campus Monday, Tuesday, Wednesday, and Friday. Please contact me for an appointment if you would like to meet with me in my office or by telephone.

**Telephone:** 304.696.2859

**Email:** For email contact with the Instructor, use the Mail tool of the MUOnline website for this course. If you are unable to use the course Mail tool, use the following Outlook email address: [meisele@marshall.edu](mailto:meisele@marshall.edu)

**Instructor biographical sketch:** I am an Associate Professor in the Elementary and Secondary Education Program at the Marshall University Graduate College and Coordinator of the Mathematics Program. I am also the Assessment Director for the Marshall University College of Education. I am especially interested in the concept of integrated curriculum for teaching math and science and other content areas. I also specialize in the teaching of statistics and its use in research. I hold an Ed.D. degree in Curriculum and Instruction from West Virginia University, an Ed.S. degree in Curriculum and Instruction from Marshall University, and an MA degree in Secondary Education from Marshall University. I received my undergraduate BS degree from Florida State University with a major in Chemistry, and a minor in Mathematics. I hold a WV teaching license for Chemistry, Grades 9-12, and Mathematics, Grades 5-12.

**CREDIT HOURS:** 3

**PREREQUISITES:** None

**COURSE TIME:** This course meets live, in Jenkins Hall 236, every other Wednesday, 4:00 pm to 6:20 pm, on the following 2016 Fall semester dates. ***Our first class meeting will be held on Wednesday, August 24, 4:00 pm***:

August 24, September 7, September 21, October 5, October 19, November 2, November 16, November 30

The beginning and ending dates for this Semester are reflected in Marshall University's [Academic Calendar](http://www.marshall.edu/calendar/academic/). Please review the Academic Calendar for important dates throughout the semester.

**REQUIRED TEXT:** *Statistics for People Who Think They Hate Statistics*, 5th Ed; by Neil J. Salkind, Sage Publications, Inc.; ISBN: 978-1-452-27771-4

**EQUIPMENT REQUIREMENTS:** Any calculator that has statistic tools. The Texas Instrument TI-30XIIS Calculator (solar or non-solar version; about $15.00) will work well for this course.

**COMPUTER PROGRAM REQUIRMENTS:** Microsoft Word and Microsoft Excel programs

**COMPUTER REQUIREMENTS:** Access to Marshall University MUOnline system: <http://www.marshall.edu/muonline/>

                              For technology assistance at the South Charleston Campus, contact:

Ahmad Mirzakhani 304.746.1976

Karen Haney 304.746.1974

Dustin Baldwin 304.746.2056

**RATIONALE:** In order to understand research in the educational arena, students should have a basic knowledge and understanding of descriptive and inferential statistics, and be able to use basic statistical analysis techniques in education research. Students should be able to critically evaluate statistical analysis that appears in published research and evaluation reports, and recognize the strengths and limitations of statistical procedures in applied work.

**GOALS:** To provide students a basic knowledge towards the understanding of descriptive and inferential statistics as applied in education and the social sciences; To provide a foundation for further study of statistics and research methods; To enable students to understand and critically evaluate statistical analyses which appear in published research and evaluation reports; To enable students to begin applying basic statistical techniques to research issues of interest to them.

**OBJECTIVES:** Students will be able to understand and utilize the concepts of:

1. The basic uses and limitations of statistics, such as the identification and sampling of a population and the ways that data based on a sample can be used to describe characteristics of a population.

2. Parametric and non-parametric statistics. 3. Types of variables and relate the proper statistic to them. 4. Independent and dependent variables. 5. Measures of central tendency and variability. 6. Illustrating data through the use of graphs and tables. 7. Recognize shapes of distributions of data. 8. Correlation coefficients. 9. Linear regression models. 10. The research and null hypotheses. 11. Normal curve distribution and the z-score. 12. Significance in inferential statistics. 13. The t-test in inferential statistics. 14. Analysis of Variance. 15. Testing of the correlation coefficient. 16. Chi-Square, Mann-Whitney U, and Kruskal-Wallace non-parametric tests

**EVALUATION/MEASUREMENT/ASSESSMENT OF LEARNER OUTCOMES**:

1. Assignments – practice of statistic computations and review of statistics concepts.

2. Data collection and class activities – collection of data and activities to illustrate statistical concepts and methods.

3. Research analysis – analysis of articles representing the statistical tests examined in this course.

4. In-class daily assignments and discussions – participation in class discussions and completion of practice problems representative of the statistic concept presented during class; practice to identify questions before students leave class.

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| Wednesdays of 2016  Fall Semester | Class Activities and Chapter Concepts  **Live Class meetings are every other Wednesday. See this column for class meeting dates.** | EDF 517 Statistical Methods  Chapter Readings, Assignments, Activities, Due Dates | Total Points: 2000 |
| Week 1 August 24 | **Class Meeting: Wednesday, August 24,**  **4-6:20 pm, Jenkins Hall 236**  Course Introduction  Food Study data collection  Coin Flip data collection  Chapter 6: Level of Measurement | * Collect Food Study data (due Monday August 29) * Collect Coin Flip data (due Wednesday September 7, bring to class) * Read Chapter 6 pages 105-109 * Read Chapter 1 * Read Chapter 2 | 100  100 |
| Week 2 August 31 |  |  |  |
| Week 3 September 7 | **Class Meeting: Wednesday, September 7,**  **4-6:20 pm, Jenkins Hall 236**  Chapter 1: Central Tendency  Chapter 2: Variability  Introduction to Excel statistical tools | * Assignment 1 Central Tendency (due Monday September 12) * Assignment 2 Variability (due Thursday September 15) * Read and Pre-analyze Research 1 (due in class Wednesday September 21) * Read Chapter 3 * Read Chapter 4 | 100  100 |
| Week 4 September 14 |  |  |  |
| Week 5 September 21 | **Class Meeting: Wednesday, September 21,**  **4-6:20 pm, Jenkins Hall 236**  Pre-analyze Research 1 discussion  Chapter 3: Histograms  Analyze coin flip data  Chapter 4: Normal Curve | * Analyze Research 1 (due Monday September 26) * Assignment 3 Histograms (due Thursday September 29) * Assignment 4 Normal Curve (due Monday October 3) * Read Chapter 7 * Read Chapter 8 * Read Chapter 9 * Read Chapter 10 | 100  100  100 |
| Week 6 September 28 |  |  |  |
| Week 7 October 5 | **Class Meeting: Wednesday, October 5,**  **4-6:20 pm, Jenkins Hall 236**  Group Research 4 discussion  Chapter 7: Hypothesis Testing  Chapter 8: Normal Curve Probability Chapter 9: Significance Testing  Chapter 10: Z-Scores | * Assignment 5 Z-Scores (due Monday October 10) * Read Chapter 11 * Read Chapter 12 * Begin working with your group to plan Research 4 presentation | 100 |
| Week 8 October 12 |  |  |  |
| Week 9 October 19 | **Class Meeting: Wednesday, October 19,**  **4-6:20 pm, Jenkins Hall 236**  Chapter 11: t-test independent  Chapter 12: t-test dependent | * Assignment 6 Independent t-test (due Monday October 24) * Assignment 7 Dependent t-test (due Thursday October 27) * Read Chapter 13 * Read and pre-analyze Research 2, pages 677- to first paragraph on page 684 (due in class Wednesday November 2) * Continue working with your group to plan Research 4 presentation | 100  100 |
| Week 10 October 26 |  |  |  |
| Week 11 November 2 | **Class Meeting: Wednesday, November 2,**  **4-6:20 pm, Jenkins Hall 236**  Pre-analyze Research 2 discussion  Chapter 13 - ANOVA  Graphing data  Introduction to SPSS statistical tools | * Analyze Research 2 (due Monday November 7 ) * Assignment 8 ANOVA (due Thursday November 10) * Read and Pre-analyze Research 3 (due in class Wednesday November 16) * Read Chapter 5 * Read Chapter 15 * Read Chapter 16 * Continue working with your group to plan Research 4 presentation | 100  100 |
| Week 12 November 9 |  |  |  |
| Week 13 November 16 | **Class Meeting: Wednesday, November 16,**  **4-6:20 pm, Jenkins Hall 236**  Pre-Analyze Research 3 discussion  Chapter 5: Correlation  Chapter 15: Correlation Significance  Chapter 16: Linear Regression | * Analyze Research 3 (Due Monday November 21) * Assignment 9 Correlation (due Monday November 28) * Assignment 10 Linear Regression (due Monday November 28) * Read Chapter 17 * Continue working with your group to plan Research 4 presentation | 100  100  100 |
| Week 14 November 23 | Thanksgiving Break |  |  |
| Week 15 November 30 | **Class Meeting: Wednesday, November 30,**  **4-6:20 pm, Jenkins Hall 236**  Chapter 17: Non-Parametric Tests  Group Research 4 Presentation | * Assignment 11 Chi Square (due Monday December 5) * Assignment 12 Mann-Whitney U and Kruskal-Wallis (due Thursday December 8) * Group Research 4 presentations (in class November 30) | 100  100  100 |
| Week 16 December 7 |  |  |  |
| Week 17 December 14  Finals Week | There is no final exam for this course | * Total Class Participation for the semester * Grades are due next week Monday December 19 / TOTAL POINTS 2000 | 200 |

**GRADING POLICY:** The following grading scale will be used for this course:

A: 93%-100% 1860-2000 points

B: 83%-92.9% 1660-1859 points

C: 73%-82.9% 1460-1659 points

D: 63%-72.9% 1260-1459 points

F: below 63% Below 1260 points

**COURSE POLICY STATEMENTS ON COURSE ASSIGNMENTS, ATTENDANCE POLICY, and INCLEMENT WEATHER POLICY:** Your grade is based on the activities and assignments as described above and are due according to the course calendar as described above. In order to successfully complete this course, course work due dates from the Course Calendar should be closely followed. However, there is no grade penalty for course work that is submitted late. If an assignment is not completed by the due date, student must contact the Instructor who will work with the student to have the assignment completed in a timely fashion, as deemed by the Instructor, in order for the student to keep up with the course work during the semester. ***All assignments must be completed by the end of the semester. According to the Marshall University Graduate Policy, an Incomplete can only be considered due to an emergency.***

This course makes use of a Blackboard course shell to supplement the live class meetings. This Blackboard course shell is used for: communication with Instructor, submission of assignments, availability of resources and classroom handouts, notes for content covered in class meetings, and communication between course students.

In-class daily assignments and discussions: Attendance is crucial to the success of this course. Much of the class period will be geared towards discussion and student participation. Students will be able to make up class work with an excused absence. Excused absences will consist of the following: If you know in advance the class meeting dates that you cannot attend, consult with the Instructor immediately in order to make arrangements for coverage of topics and assignments for that day. If you are unable to attend class because of an unforeseen emergency or inclement weather problem in your area, contact the instructor within 48 hours of class-time (in person, telephone, or course website email) for consultation of topics and assignments for that day. Make-up work will be assigned by the Instructor for excused absences.

If in doubt as to whether class will be cancelled due to inclement weather, first call 745-2500 for this information. If class is cancelled due to University wide inclement weather emergencies, the Instructor will email all students through the Blackboard course shell. Please remember to check your course email often on days that appear to hold the promise of inclement weather.

**UNIVESITY POLICIES**

**Plagiarism/Academic Dishonesty Policy:** Plagiarism is defined as “submitting as one’s own work or creation any material or an idea wholly or in part created by another. This includes oral, written, and graphical material, and both published and unpublished work. It is the student’s responsibility to clearly distinguish his/her own work from that created by others. This includes the proper use of quotation marks, paraphrase, and the citation of the original source” (2008-2009, Graduate Catalog, p. 61). Refer to Marshall University Board of Governors Policy No. AA-12 Academic Dishonesty - <http://www.marshall.edu/president/Board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf> – for complete details.

**Policy for Students with Disabilities**

Marshall University is committed to equal opportunity education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117 (304.696.2271) to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student’s instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing, and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, access the website for the Office of Disabled Student Services: <http://www.marshall.edu/disabled/>

**Non-Discrimination Policy**

It is the policy of Marshall University to provide equal opportunities to all prospective and current members of the student body, faculty, and staff on the basis of individual qualifications and merit without regard to race, color, sex, religion, age, disability, national origin, or sexual orientation. To obtain information on the implementation of the policy regarding nondiscrimination, contact the Director of Equity Programs, Old Main, Marshall University, Huntington, WV 24755 (304.696.2592)

**Computer Use Policy**

Computing Services Acceptable Use Policy @ <http://www.marshall.edu/ucs/CS/accptuse.asp>