College of Micronesia – FSM
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Course Outline Cover Page

Statistics in the Classroom	**MS/ED 200**
Course Title	**Department and Number**

Course Description: This one-semester course in the A.S. degree program for teacher education covers basic knowledge, methods, and skills in the use of statistics in the elementary-school classroom. It introduces four broad areas of educational statistics specific to instruction in the classroom: (1) descriptive methods (frequency distribution, measures of central tendency, and measures of dispersion); (2) statistical inference (chi square and t-testing); (3) measurement of readability; and (4) identification of pupil weaknesses in learning and of teacher weaknesses in teaching.

Course Prepared by: Alton Higashi, Chairman, Education Department   State: Chuuk

	Hrs./Week	No.of.Weeks	Total Hours	Semester Credits
Lecture	3 x	16 =	48	3
Laboratory	n/a			
Workshop	n/a			

Total Semester Credits : **3**

Purpose of Course: Degree Requirement   x   (one of five state requirements)
Degree Elective
Certificate
Remedial
Other (workshop)

Prerequisites: MS/ED 110, ED 210, and ED 211, and may be taken concurrently with ED/WS 200; or with permission of instructor to allow students with A.S. degrees in other areas to take this course as part of teacher preparation

_____   _____
Signature, Chairperson, Curriculum Committee   Date Approved by Committee

_____   _____
Signature, President, COM-FSM   Date Approved by President

<u>PROGRAM LEARNING OUTCOMES</u> **(PLOs)**
Source: General Catalog 2005-2007 (page 53)

PLO(1):   Demonstrate mastery of the content of the elementary school curriculum
PLO(2):   Develop basic elementary school curriculum
PLO(3):   Demonstrate delivery of elementary school curriculum
PLO(4):   Use (demonstrate) delivery of elementary school curriculum
PLO(5):   Assess and evaluate elementary school student learning at both the formative and summative levels
PLO(6):   Organize and manage a classroom environment for learning
PLO(7):   Demonstrate and use background knowledge in learning theories and principles
PLO(8):   Demonstrate and use background knowledge in human development
PLO(9):   Demonstrate and use background knowledge in technology
PLO(10): Demonstrate and use background knowledge in educational foundations
PLO(11): Demonstrate and use background knowledge in natural/physical science
PLO(12): Demonstrate and use background knowledge in the demonstration of professionalism

<u>COURSE LEARNING OUTCOMES</u> (CLOs)
[NOTE: MS/ED 200 does not fulfill PLO8, PLO10, and PLO11.]

(1)   Descriptive statistics . . . . (PLO1, PLO2, PLO3, PLO9)
(2)   Statistical inference. . . . . (PLO5, PLO9)
      Instructional weaknesses . . . . (PLO4, PLO6, PLO7, PLO12)
(3)   Measurement of readability. . . . . (PLO4, PLO6, PLO12)

<u>GENERAL AND SPECIFIC OBJECTIVES</u>: The student will be able to (TSWBAT):

(1)   <u>DESCRIPTIVE STATISTICS</u>
      Understand and apply basic knowledge, methods, and skills in educational statistics to classroom testing and evaluation

      1.1   Define various vocabulary words used in assessment, as shown in Appendix 1.
      1.2   Define various vocabulary words used in descriptive statistics, including the normal distribution curve, as shown in Appendix 2.
      1.3   Identify, through the application of number sense, quantitative examples of key statistics
      1.4   Define different kinds of objective test items, including multiple-choice, fill-in-the-blank (including cloze testing), true-and-false, and open-ended question.
      1.5   Given scores of approximately 20-30 pupils on a simulated test, of a maximum score of at least 31 points, already designed and developed in Chuuk with a KR-21 reliability of at least 0.85, calculate with accuracy of at least 95% correct, the following descriptive statistics on the test:
            ● frequency distribution
            ● mean, median, and mode
            ● standard deviation and standard error
            as documented in a written report of test findings and recommendations.
      1.6   Construct a frequency distribution of scores taken from a simulated test.
            [NOTE: There shall be 4 simulated tests in the course, and the student will calculate the necessary statistics with at least 95% correct by the 4th test.]

(2) **STATISTICAL INFERENCE AND INSTRUCTIONAL WEAKNESSES**
►Understand and apply statistical methods to upgrade teaching methods and to improve pupil learning in the classroom
►Use appropriate formulas in determining instructional weaknesses based on classroom test analysis

2.1 Given the calculated statistics on a simulated test, anayze and evaluate pupil strengths and weaknesses for each test item, through the use of item validity and standard error, and recommend steps to advance strengths and remediate weaknesses in learning styles, as documented in a written report of test findings and recommendations.
[NOTE: There shall be four such reports, and, in each report, the student will recommend at least one instructional strategy to advance learning strengths and at least one instructional strategy to remediate learning weaknesses.]

2.2 Given the calculated statistics on a simulated test, analyze and evaluate teacher strengths and weaknesses for each test item, through the use of item validity and standard error, and recommend steps to advance strengths and remediate weaknesses in teaching styles, as documented in a written report of test findings and recommendations.
[NOTE: There shall be four such reports, and, in each report, the student will recommend at least one instructional strategy to advance teaching strengths and at least one instructional strategy to remediate teaching weaknesses.]

2.3 Defend in a well-written paragraph the importance of confidentiality in the use of test scores.

2.4 Explain in a well-written paragraph the nature of a pre-/post-test, using samples from the TQEG modules for math and for ESL.
[NOTE: The U.S. federally funded program, entitled Teacher Quality Enhancement Grant, as implemented in the COM-FSM Chuuk Campus' TQEG teacher training program during the Summer of 2006, includes pre-/post-tests for math and ESL. The use of such tests in this course presumes that approval of this course outline grants permission to use them.]

2.5 Given scores of students on the TQEG module pre-/post tests, in both math and ESL, calculate with accuracy of at least 95% correct the following inferential statistics on the tests:
   ● chi-square (for post-testing)
   ● t-testing (for pre-/post-testing)
   as documented in a written report of test findings and recommendations.
[NOTE: There shall be 2 sets of student scores on such tests, and the student will calculate the necessary statistics with at least 95% correct by the 2nd test.]

2.6 Given the calculated statistics on the TQEG module pre-/post-tests, analyze and evaluate strengths and weaknesses for each test item, through the use of item validity and standard error, and recommend options to revise the test, as documented in a written report of test findings and recommendations.
[NOTE: There shall be 2 such reports, and, in each report, the student will recommend at least one revision in test items.]

2.7 Construct a frequency distribution of scores taken from the pre-/post-test.

(3) **MEASUREMENT OF READABILITY**
Understand and apply readability formulas to select appropriate grade-level reading materials in the elementary school (Grades 5-8) in Chuuk

    3.1   Identify and collect a set of instructional reading materials in actual use in Chuuk's elementary schools (Grades 5-8), both public and private.

    3.2   Describe in a narrative outline the steps used to calculate readability of a book or instructional reading material.

    3.3   Given a reading material deemed appropriate for reading instruction in Chuuk's upper-elementary grade levels, calculate readability, using both SMOG and Fry's readability chart, and justify use or non-use of the reading material, by grade level, as documented in a written report on readability.
[NOTE: There shall be at least four reading materials, as already deemed appropriate and used by teachers at upper-elementary grade levels in Chuuk's public and private schools.]

COURSE CONTENTS: Please refer to page 5.

METHODS OF INSTRUCTION: Lectures, group work, group discussions, hand-out readings, assignments (both in-class and take-home), and demonstrations.

REQUIRED TEXTBOOK: Elementary Statistics (5th edition) by Allan Bluman (0-07-2880716). If no longer available, the following may substitute:
(1) Textbook: Robert J. Marzano, Transforming Classroom Grading (ASCD).
(2) Magazine: Educational Leadership (February 2000)
(3) Magazine: Educational Leadership (February 2003)
(4) Internet Resources: Readability Formulas

SUPPLEMENTARY MATERIALS: Hand-Outs to be developed by instructor.

REFERENCE MATERIALS: None.

EVALUATION: Standard COM-FSM policy applies.

CREDIT BY EXAMINATION: None.

ATTENDANCE POLICY: Standard COM-FSM policy applies.