KIN 3313 Statistics and Measurement in Kinesiology

Course Description: Measurement and evaluation of physical attributes and performance.

Course Prerequisites: KIN 1303, MATH 1320 or MATH 1508, and departmental approval.

Course Textbook: Morrow, J.R., Jackson, A. W., Disch, J.G., & Mood, D.P. (2005). Measurement and evaluation in human performance (3rd Ed.)

Course Rationale:
The main goal of this course is to help you learn and understand the rules and reasons behind conducting tests and evaluating persons' performances so you can give them honest and true feedback about their performance level. Many professionals, whether teacher, coach, therapist, fitness instructor, personal trainer, or even mom and dad are involved in measuring and evaluating someone else's performance either formally or informally. "Jimmy, you threw much better than Jack" implies that a measurement took place and that the result was evaluated. "Sorry sir, you failed the written part of your driver's license test" and "You flunked your mid term, better drop the class" are other examples of measurements and associated evaluations. This course is designed to help you understand the issues related to measuring performance on physical, psychological, and knowledge tests, so that you can apply measurement and evaluation in a responsible manner and be informed about the pitfalls and possible inaccuracies of measurement and evaluation. The course aims to help you become a more effective teacher, therapist, coach, or instructor, because regardless of your profession, you will be forced to assess and evaluate people's performances and make recommendations about that person. Your decisions need to be sound, because that person may challenge them.

You will explore the theories and foundations behind measurement, basic statistics, and evaluation. You will perform different types of tests to gather real data and evaluate your own performance on these tests. You will learn to do this through readings in the textbook, in-class discussions, and in-class presentations. You will work individually and in teams to discuss and analyze a broad range of topics related to measurement and evaluation. You will practice your presentation skills through poster presentations.

Course Objectives (numbers in parentheses correspond with the outcomes on the TExES matrix):
A student who successfully completes this course will:
1. Have experienced situations and Learning Challenges in the classroom that encourage the use of higher-order thinking skills, promote recognition of interdisciplinary connections, foster use of self-assessment and self-monitoring skills and worked with diverse learners (5.3, 7.2)
2. Have experienced a sense of ownership and responsibility for helping others set goals, solve problems, learn to acquire new knowledge and skills independently, evaluate learner performance in individual and group activities and help other learners assess their own performance and skills (2.2, 3.6, 3.7, 7.3)
3. Know how to select, construct, adapt, and implement different types of informal and formal assessments and uses ongoing, formative assessment to enhance knowledge of learners, monitor their progress, and adapt instruction to address their strengths and needs (2.1, 2.2, 9.1)
4. Know how to use technology for analysis of student fitness and performance (e.g., heart monitors, skin calipers, computers) (9.3)

5. Know how to interpret assessment results and provide learners with effective feedback to enhance their performance and maintain their self-esteem (9.4)
6. Be able to explain objectivity, reliability, validity, and relevance, and their importance in measurement and evaluation; explain the concepts of measurement and evaluation; and apply basic statistical analyses
7. Be able to justify the selection of a test
8. Describe and explain the processes involved in administering tests.

Evaluation of Students:

The grading scale is as follows:

A: 90 – 100 %
B: 80 – 89 %
C: 70 – 79 %
D: 60 – 69 %
F: below 60 %

KIN 3313 TOPIC AREAS

1. Introduction to Tests and Measurements
2. Using Technology in Measurement and Evaluation
3. FitnessGram
4. Descriptive Statistics and Normal Distribution
5. Reliability and Validity
6. Norm-Referenced Measurement
7. Correlation and Prediction
8. Inferential Statistics, hypothesis testing
    a. Chi-Squared
    b. Independent and Dependent t-tests
    c. ANOVA, post-hoc testing
9. Criterion-Referenced Measurement
10. Grading: Summative Evaluation
11. Physical Fitness and Activity Assessment in Adults
12. Physical Fitness and Activity Assessment in Youth