

Sul Ross State University
Kinesiology Department
Kinesiology 5316 – Neurological Basis for Motor Learning and Control
Syllabus

Instructor: Dr. Stefanie A. Latham

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Course Description: This course is designed to provide an understanding of psychological/physiological principles involved in motor learning, control, and performance. The emphasis will be in understanding the muscular and nervous system control and in skill acquisition for school age children and adult populations.

Textbook: None, notes and supplemental material will be loaded on Blackboard

Course Objectives:

- A. To develop a functional understanding of the psychological and physiological bases of movement behavior.
- B. To be able to apply learning theory to the learning and performance of motor skills.
- C. To understand the factors that influences the learning and performance of motor skills.
- D. To understand the developmental influences on motor behavior.
- E. To be able to apply instructional and training procedures to school age and athletic populations.

Student Learning Outcomes: Masters of Science in Health and Human Performance

1. Students in the M.S. program in Health and Human Performance program will demonstrate content knowledge in physiology, nutrition, sports law, tests and measurements, motor learning, group dynamics and health and human behavior necessary for successful performance in their field.
2. Students in the M.S. Health and Human Performance program will be able to conduct research using appropriate methods, analysis, and dissemination of results.
3. Degree candidates in M.S. Health and Human Performance program will promote authentic learning, social and emotional development, and a commitment to social justice in their field.

Exams and Grading Procedures:

1. A total of two (2) exams worth 60 points each.
2. Weekly article critiques (8) worth 10 points each from professional refereed journals. (SportDiscus in Library) **Articles due every Friday** See the template at the end of the syllabus for help
3. An examination of a disorder assignment worth 100 points will be due and submitted at the end of the eight weeks. See below end of syllabus for instructions.
4. Viewing and critical analysis of a youth sports program worth 100 points
5. Viewing and critical analysis of a collegiate or advanced program worth 100 points

Under no circumstances will late work be accepted, unless prior arrangements have been made or an unforeseen emergency has occurred.

Grading

500-450=A

449-400=B

399-350=C

ADA Accommodations: Sul Ross State University is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartz, M. Ed., L.P.C., in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Telephone: 432-837-8691. E-mail: mschwartz@sulross.edu

TENTATIVE CLASS SCHEDULE

Week 1 Chpt. 0 Understanding Muscle Tissue, Chpt. 01 Understanding Muscle Contractions, Article 1 due Friday

Week 2 Chpt 001 Understanding the Nervous System, Chpt. 1 Basic Concepts of Motor Learning, Article 2 due Friday

Week 3 Chpt. 2 Development of Motor Responses, Chpt. 3 The Nature of Motor Learning, Article 3 due Friday

Week 4 Chpt. 4 Feedback, Article 1 due Friday

Friday Sep 16 Exam 1 Due by Midnight

Week 5 Chpt. 5 Timing, Chpt. 6 Information Processing, Article 5 due Friday

Week 6 Chpt. 7 Transfer, Chpt. 8 Perception, Article 6 due Friday

Week 7 Chpt. 9 Personality and Performance, Chpt. 10 Motivation, Article 7 due Friday, Youth Program Critical Analysis due Friday

Week 8 Chpt. 11 Practice Conditions, Article 8 due Friday, Collegiate Program Critical Analysis due Friday, Research Paper Due Friday

Oct 14 Exam 2 Due by Midnight

Article Critique Template

Contributing Editor: Your name

Date: January, 2014

Reference: Christie, J. S. (2014). Health and obesity: The benefits of exercise and lowered risk of diabetes. *Journal of Sport Nutrition*, 13(4), 21–29.

Sample size: 38 men, 39 women (experimental, control groups)

Duration of study: 3 months

Measurement tools: glucometer, scales, calipers, questionnaire's

Editor's critique: 200 words or <, single spaced – this is NOT a summary it is a critical analysis. Please good what a critical analysis is if you are unclear.

MOTOR LEARNING EXAMINATION OF DISORDER ASSIGNMENT

For this assignment you will investigate a motor learning/control disorder in exercise science. The topic selected must be related to your career goals. For example, you should investigate a disorder you are likely to encounter in practice. It may be a good idea to select a topic and use all your article critiques to help you write this paper. There is no length on how long your paper must be, as long as the five areas below are addressed. Please check for spelling and grammatical errors on your paper.

1. **What has gone wrong in the disorder?** (this often includes a discussion of the physiology of the normal functioning of the system or structure in question).

2. **Causes for the disorder** should be discussed. If the cause is debated, discuss the different ideas. If the cause is unknown, discuss the hypothesized causes.
3. **Motor learning or control effects of the disorder** should be discussed and related to the motor learning or control principles discussed in class where possible.
4. **Treatments** should be discussed. State whether it is due to drug therapy or physical rehabilitative purposes.
5. **How would you work or mainstream this person with such a disorder.**

Sample Motor Learning / Control Disorder Topics

Speech disorders

Motor unit control

Cerebral palsy

Maximum voluntary contraction

Muscular dystrophy

Velocity of strength training

Multiple sclerosis

PNF

Spinal cord injury

Reflexes

Clumsy child syndrome,
a.k.a. developmental coordination disorder

Diabetic

Autism

Touretts syndrome

Essential tremor

Epilepsy

Down's syndrome

Parkinson's disease

Proprioceptive training

Neural basis of plyometric training

Muscle fiber changes with training

Neural contributions to hypertrophy