Kinesiology 5316 – Neurological Basis for Motor Learning and Control
8-Week Syllabus
Department of Kinesiology & Human Performance
Sul Ross State University

Instructor: Dr. Chris Herrera, PhD
Email (preferred): Christopher.Herrera@sulross.edu (Give 24hrs for a weekday response; 48hrs for weekend response)
Phone: 432.837.8375 (Please leave a detailed message with call back number if out of office)

Textbook: None, notes and supplemental material will be loaded on Blackboard. However, you will need to access the SRSU Library to locate and download peer-review, scholarly articles. For assistance you may Ask the Library or contact the Graduate Student Center for help.

The Graduate Student Center, located in BAB 104, provides resources and services for all SRSU graduate students. There is a computer lab with desktop computers and a networked printer/copier/scanner; laptop computers which can be checked out; a projector and screen for rehearsing student presentations; and a conference room for group study. Both Alpine and distance education students can receive writing and thesis assistance by contacting shileman@sulross.edu or calling 432-837-8015.

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.

Student Learning Outcomes:
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.

Methods of Evaluation:

Weekly Discussions (5x60 points each) 300 points 30%
Assignments (3x 100 points each) 300 points 30%
Exams (midterm & final; 150pts each) 300 points 30%
Total 900 points 100%

Grading Policy
810-900=A
720-809=B
630-719=C
Etc…Note: Satisfactory progress in the HHP program means a cumulative GPA of 3.0 in all core classes (e.g. everything leading up to the final practicum course). If you feel like you need additional support please contact your professor within the first two weeks of class.
EXPECTATION OF STUDENTS:
- Students are responsible for keeping up with the reading and are expected to read the assigned chapters and/or other posted readings prior to class in order to contribute to online discussion.
- Handouts distributed through Blackboard should be kept in a notebook in order to be referred to as necessary.

ACADEMIC DISHONESTY OR MISCONDUCT: Sul Ross State University is committed to the highest standards of integrity and ethical conduct. Participating in behavior that violates academic integrity (plagiarism, etc.) will result in disciplinary action and may include: receiving a failing grade for the assignment, failing the course, and suspension and/or dismissal from the University.

DROP POLICY: Access information regarding schedule changes at: http://www.sulross.edu/page/967/schedule-changes-withdrawals
## Calendar

**KES/KIN 5316 – Graduate Motor Learning**

<table>
<thead>
<tr>
<th>Week</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Chapters: 0, 01, 001</td>
<td></td>
<td></td>
<td>Article 1 Due</td>
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<td>Responses to Article 1 Due</td>
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<tr>
<td>2</td>
<td>Chapters: 1-3</td>
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<td>Article 2 Due</td>
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<td>Responses to Article 2 Due</td>
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<tr>
<td>3</td>
<td>Chapters: 4-6</td>
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<td>Article 3 Due</td>
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<td></td>
<td>Responses to Article 3 Due</td>
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<tr>
<td>4</td>
<td>Chapters: 7-8</td>
<td></td>
<td>Exam 1 Due (through chapter 6)</td>
<td>Article 4 Due</td>
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<td>Responses to Article 4 Due</td>
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<tr>
<td>5</td>
<td>Chapters: 9-11</td>
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<td>Article 5 Due</td>
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<td>Responses to Article 5 Due</td>
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<tr>
<td>6</td>
<td>Review</td>
<td></td>
<td></td>
<td>Paper Due: Examination of Disorder</td>
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<td>Critical Analysis Due: Youth Sports</td>
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<tr>
<td>7</td>
<td>Review</td>
<td></td>
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<td></td>
<td></td>
<td>Critical Analysis Due: Advanced Sports</td>
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<tr>
<td>8</td>
<td>Review</td>
<td></td>
<td></td>
<td>Exam 2 Due</td>
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### Chapter Description

Week 1  
Chpt. 0 Understanding Muscle Tissue  
Chpt. 01 Understanding Muscle Contractions  
Chpt 001 Understanding the Nervous System

Week 2  
Chpt. 1 Basic Concepts of Motor Learning  
Chpt. 2 Development of Motor Responses  
Chpt. 3 The Nature of Motor Learning

Week 3  
Chpt. 4 Feedback  
Chpt. 5 Timing  
Chpt. 6 Information Processing

Week 4  
Chpt. 7 Transfer of learning  
Chpt. 8 Perception (Depth Perception)

Week 5  
Chpt. 9 Practice Considerations  
Chpt. 10 Personality & Performance  
Chpt. 11 Practice Conditions
EVALUATION PROCEDURES:

**Article Critique Instructions & Template**

Each of the first five weeks you will be responsible to locate and critically analyze a recent peer-reviewed article on a topic related to each week’s reading materials. A peer-reviewed article means one that is published in a peer-reviewed / referred journal (e.g. American Journal of Sports Medicine). To locate a peer-reviewed article you can simply access through the SRSU Library page (note – use the ‘Advanced Search’ function using keywords for your topics) for the quickest access. A link to the article search page on the SRSU website is included in the Blackboard discussion for each week. For additional assistance contact the SRSU Library and/or your professor. Grading for the article discussions will be as follows:

- **Discussions** = 60 points total; 40 points for initial post / 10 points for ‘response’ / 10 application
  
  There will be a discussion prompt posted under the Article Discussion tab for you to respond to each week. To create a thread you click on the hyperlink to the discussion and then click on create new thread. Put the short title of the article and the week number in the subject line (e.g. maximum voluntary contraction in basketball players-Week 1). You can respond directly in the message area, however, I strongly suggest you type your response in a word document, spell check, then copy and paste it into the message area. Each discussion post is worth 40 points; up to 10 points will be deducted for each day a discussion post is late or not following the instructions.

- **‘Response to others’**
  
  Under each discussion post you must read and respond to one of your classmate’s original discussion post. Each response is worth up to 10 points. Responses are due 48hrs after the original discussion due date. The response must be more than “good job”, “I like what you said”, etc., it must be a substantial response that would be as if you were having a discussion on the topic in class.

  A substantial response would include, but not limited to: adding to the discussion with further information you find (cite your source), asking relevant questions, describing application to sports, health or performance, as well as critiquing in a positive way the post. ALWAYS spell check and edit your responses. These should be academic responses and not chat room or informal language. Do be respectful of others, do use proper language – do NOT hurt others feelings. To respond to another’s post, click on their post and then choose reply. Title the subject of your response with your “Last name” and “response to ______-Week 1 post” (eg. Herrera’s response to Henderson’s Week 1 post).

- **‘Application’**
  
  Each week you will also need to locate and post a link to video. The video should also be posted with a description as to how it relates to the readings and your professional career.
Contributing Editor: Your name

Date: January, 2014


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

Duration of study: 3 months

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

Editor’s critique: 500 words or <, single spaced – this is NOT a summary it is a critical analysis. Please see Blackboard resource under ‘Course Notes’ and/or research what a critical analysis is if you are unclear. Ask professor for additional assistance if needed.

***Don’t forget that you will actually attach the article as a PDF too.***
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

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Related Concept</th>
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<tbody>
<tr>
<td>Speech disorders</td>
<td>Motor unit control</td>
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<tr>
<td>Cerebral palsy</td>
<td>Maximum voluntary contraction</td>
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<td>Muscular dystrophy</td>
<td>Velocity of strength training</td>
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<td>Multiple sclerosis</td>
<td>PNF</td>
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<td>Spinal cord injury</td>
<td>Reflexes</td>
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<td>Clumsy child syndrome,</td>
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<td>a.k.a. developmental coordination disorder</td>
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<td>Diabetic</td>
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<td>Autism</td>
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<td>Touretts syndrome</td>
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<td>Essential tremor</td>
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<td>Epilepsy</td>
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<tr>
<td>Down’s syndrome</td>
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<tr>
<td>Parkinson’s disease</td>
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<td>Proprioceptive training</td>
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<td>Neural basis of plyometric training</td>
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<tr>
<td>Muscle fiber changes with training</td>
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<tr>
<td>Neural contributions to hypertrophy</td>
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✔ **Exams = 150 points each**
  - Exams may consist of essay, fill-in, short answer, true/false, and/or multiple choice questions. Exams could cover any material provided in the assigned readings.
  - There will be 2 exams (midterm and final), each worth 150 points. All students are expected to take the exam on the designated day and time assigned. If a student cannot take the exam during the scheduled time, it is the student’s responsibility to approve the absence and request a make-up exam with the instructor at least one week **PRIOR** to the week of the exam.

**Note:** All grading will be based on the quality of the assignment submitted; factors such as a student's ability and the effort put into an assignment will only be assessed to the extent that they influence the quality of the work submitted. All written work should be submitted in complete sentences with graduate level grammar; any questions on this policy should be directed to the professor by the 2nd week of term.