



TEXAS A&M UNIVERSITY-COMMERCE
DEPARTMENT OF HEALTH AND HUMAN PERFORMANCE
HHPK 335 Kinesiology and Biomechanics – Laboratory
Fall 2015

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Class time: Monday & Wednesday, 2:00 – 3:15
Office hours: By email appointment only
Required Text:

Required Materials: Text Book, pen or pencil, paper to take notes. You will be informed beforehand if some type of workout clothing is needed.

Tentative Lab Schedule:

This lab will be used to supplement what you are learning in the lecture portion. We will apply that material in a practical sense and discuss the topics that are the hardest to understand. Equipment will be used when we are able to and when it is applicable to the lesson.

There will be a final exam. Assignments, quizzes, and bonus points will be given at my discretion. Any assignments given will be due by your next lab. No late work unless a very good reason is given.

| Date | Chapters | Topics and Page Numbers | Assignments Due |
|-------------|-----------------|---|------------------------|
| Week 1 | Course Overview | Chapter 1: Basic Information (Clinical Kinesiology and Anatomy), 3 Descriptive Terminology, 4 Segments of the Body, 5 Types of Motion, 6 Joint Movements (Osteokinematics), 7 | |
| 2 | 8 | Chapter 8: Basic Biomechanics Laws of Motion, 94 Force, 95 Torque, 97 Stability, 99 Simple Machines, 102 Basic Biomechanics continued Levers, 102 Pulleys, 108 Wheel and Axle, 109 | |

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| | | Inclined Plane, 109 | |
| 3 | 2 | Chapter 2: Skeletal System Functions of the Skeleton, 13 Types of Skeletons, 13 Composition of Bone, 13 Structure of Bone, 14 Types of Bones, 16 Common Skeletal Pathologies, 17 | |
| 4 | 3 | Chapter 5: Muscular System Muscle Attachments, 39 Muscle Names, 40 Muscle Fiber Arrangement, 41 Functional Characteristics of Muscle Tissue, 42 Length-Tension Relationship in Muscle Tissue, 42 | Article 1 |
| | | Review-Test 1 | |
| 5 | 4 | Chapter 4: Arthrokinematics Osteokinematic Motion, 31 End Feel, 31 Arthrokinematic Motion, 32 Accessory Motion Terminology, 32 Joint Surface Shape, 32 Types of Arthrokinematic Motion, 33 Convex-Concave Rule, 34 Joint Surface Positions (Joint Congruency), 35 Accessory Motion Forces, 36 | |
| | | Active and Passive Insufficiency, 43 Types of Muscle Contraction, 45 Roles of Muscles, 48 Angle of Pull, 48 Kinetic Chains, 49 | |
| 6 | 3 | Chapter 3: Articular System Types of Joints, 21 Joint Structure, 24 Planes and Axes, 27 Degrees of Freedom, 28 Common Pathological Terms, 28 | |
| 7 | 9 | Chapters 9: Shoulder Girdle Clarification of Terms, 115 Bones and Landmarks, 116 Joints and Ligaments, 117 Joint Motions, 119 Companion Motions of the Shoulder Joint and Shoulder Girdle, 120 Scapulohumeral Rhythm, 120 | |

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| | | <p>Angle of Pull, 121 Anatomical Relationships, 125 Force Couples, 126 Reversal of Muscle Action, 126</p> | |
| 8 | 10 | <p>Chapter 10: Shoulder Joint Joint Motions, 131 Bones and Landmarks, 132 Ligaments and Other Structures, 134 Muscles of the Shoulder Joint, 135 Anatomical Relationships, 140 Glenohumeral Movement, 141 Summary of Muscle Innervation, 142 Summary of Muscle Action, 142</p> | |
| | 11 | <p>Chapter 11 Elbow (Wrist/Hand) Joint Motions Bones and Landmarks Ligaments and Other Structures Muscles of the Shoulder Joint Anatomical Relationships Glenohumeral Movement Summary of Muscle Innervation Summary of Muscle Action</p> | Article 2 |
| | | Review- Test 2 | |
| 9 | 15 | <p>Chapter 15: Neck and Trunk Vertebral Curves, 211 Clarification of Terms, 211 Joint Motions, 212 Bones and Landmarks, 213 Joints and Ligaments, 217 Muscles of the Neck and Trunk, 219 Muscles of the Cervical Spine, 219 Muscles of the Trunk, 222 Anatomical Relationships, 227</p> | |
| 10 | 17 | <p>Chapter 17: Pelvic Girdle Structure and Function, 247 False and True Pelvis, 248 Sacroiliac Joint, 248 Pubic Symphysis, 252 Lumbosacral Joint, 252 Pelvic Girdle Motions, 253 Muscle Control, 256 Joint Structure and Motions, 262</p> | |
| 11 | 18 | Chapter 18: Hip Joint | Article Summary |

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| | | <p>Bones and Landmarks, 262 Ligaments and Other Structures, 265 Muscles of the Hip, 267 Anatomical Relationships, 274 Common Hip Pathologies, 275</p> | <p>3 <i>Sign up for Sport Skill to Analyze</i></p> |
| 12 | 19 | <p>Chapter 19: Knee Joint Joint Structure and Motions, 283 Bones and Landmarks, 286 Ligaments and Other Structures, 287 Muscles of the Knee, 289 Anterior Muscles, 290 Posterior Muscles, 291 Anatomical Relationships, 293 Summary of Muscle Action, 294 Summary of Muscle Innervation, 294 Common Knee Pathologies, 294</p> | |
| 13 | 20 | <p>Chapter 20: Ankle Joint and Foot Functional Aspects of the Foot, 303 Joints and Motions, 304 Ankle Motions, 304 Ankle Joints, 305 Foot Joints, 307 Ligaments and Other Structures, 308 Arches, 308 Muscles of the Ankle and Foot, 310 Extrinsic Muscles, 310 Anatomical Relationships, 317 Intrinsic Muscles, 317</p> | |
| 14 | 21 | <p>Chapter 21: Posture Vertebral Alignment, 329 Development of Postural Curves, 330 Standing Posture, 332 Lateral View, 332 Anterior View, 333 Posterior View, 333 Sitting Posture, 334 Supine Posture, 336 Common Postural Deviations, 336</p> | |
| 15 | 22 | <p>Chapter 22: Gait Analysis of Stance Phase, 342 Analysis of Swing Phase, 346 Additional Determinants of Gait, 347</p> | <p>Article 4</p> |

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| | | Age-Related Gait Patterns, 348 Abnormal (Atypical) Gait, 349 Muscular Weakness/Paralysis, 349 Joint/Muscle Range-of-Motion Limitation, 351 Neurological Involvement, 352 Pain, 353 Leg Length Discrepancy, 354 | |
| 16 | | Sport Skill Analysis Presentations | Presentation |
| | | Sport Skill Analysis Presentations | Presentation |
| | | Review: Final Exam | |

Course Grading:

Attendance will constitute the majority of your grade. Attendance includes; showing up on time, staying through the whole lab, having your book, having any assignments, and voluntarily participating.

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| Grading Scale: | 100 – 90% | A |
| | 89 – 80% | B |
| | 79 – 70% | C |
| | 69 – 60% | D |
| | 59 – 0% | F |

Attendance Policy:

You need to attend all labs. All lab write-ups are to be conducted in class and due at the end of class. If the lab write-up is not turned in, you have till the next class session to turn in your work. After that time lab write-ups will not be accepted. If for any reason you are going to be late or are unable to attend lab, please notify me ahead of time or you will be counted absent. Failure to notify me in advance will result in an absence that can't be made up and a grade of zero.

Student Conduct:

This course will cover biomechanics. Students should feel comfortable discussing their individual views and experiences concerning each subject. Students should also respect each other's differences and respect each other as each issue is discussed. **If the instructor deems that individual students are not being respectful toward each other or the instructor, then these students will be asked to leave (and eventually drop the course if the negative conduct continues).** Please refer to pages 42 – 45 of the TAMU-C Student Guidebook's Codes of Conduct for details.

Students with Disabilities:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation

requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library, Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamu-commerce.edu

Plagiarism/academic dishonesty---Plagiarism is copying another's work as your own without proper acknowledgment. Be aware that the intent to deceive the reader does not have to be present for plagiarism to occur. Also ignorance of the definition of plagiarism is also not an excuse and will result in the same consequences as for someone who is educated. Plagiarism is also not restricted to copying the writings of others, nor to stealing from established authors; it includes the ideas of your fellow students. If you plagiarize in this class (including cheating on tests) you will receive an automatic "F". If you are in any doubt as to whether your work constitutes plagiarism or academic dishonesty, please discuss this with me confidentially.