Course Description: This course explores the techniques of human motion analysis. Particular emphasis is placed on the anatomical, mechanical and physical principles of motion analysis.

Course Credit: 3
Prerequisites: EXSC/PEHD 201, BIOL 202

Course Objectives: My goal for each of you at the completion of this class is that you will demonstrate an understanding of anatomical nomenclature and an ability to correctly apply this terminology to describe human movement. Secondly, that you will be able to describe the primary function of major joints within the body and how structures within each joint influences movement and relates to common injuries. Finally, each of you will be able to describe walking and running patterns and identify normal and abnormal movement strategies.
# Student Learning Outcomes:

| Students will be able to identify reference planes and apply terminology associated with movement as indicated by earning an 80% or higher on the EXSC 330 movement analysis assignment. |
| Students will be able to describe how musculoskeletal anatomy of the spine and upper extremities influence human movement and function as evidenced by earning an 80% or higher on EXSC 330 Exam 2. |
| Students will be able to describe walking and running gait patterns as evidenced by earning an 80% or higher on the EXSC 330 gait analysis video project. |

## COURSE REQUIREMENTS

### Course Text:
2. Supplemental readings will be posted on OAKS.

### Hardware:
1. Computer with high speed internet access, sound card, microphone and external speakers or headphones.
2. Webcam for weekly class participation.

### Software:
1. Consistent and reliable access to high speed internet.
2. Adobe Acrobat Reader to view assigned readings.

### Student Resource:
1. The College of Charleston has put together an online resource guide for students enrolled in a distance education course. I recommend you take a look at the following link to view some helpful strategies and resources for successfully navigating this online course!

   [http://blogs.cofc.edu/studentreadinessforonlinelearning](http://blogs.cofc.edu/studentreadinessforonlinelearning)
Navigating This Course:

Each module will contain a checklist in the content section of OAKS to assist you in staying organized. More specific instructions for each assignment will be posted under the content section within OAKS. Remember to use the appropriate communication method as outlined below in the communication strategies section of this syllabus.

Course material will be organized into 6 content modules that you will be able to access and progress once I release them in accordance with the course schedule. I encourage you to set a weekly schedule to work through the material in order to stay organized and avoid procrastination. Each module will consist of:

1. Required readings
2. Reading comprehension questions
3. Recorded lectures
4. Participation opportunities
5. An application assignment
6. Quizlet study questions
7. An overall module quiz

KEYS TO SUCCESS

1. Don’t be a stranger!
I recommend logging in often (at least 4 times per week) to ensure you are accessing material in manageable amounts, staying informed of announcements and participating in lecture discussions.

2. Be an active participant!
I will ask for your opinions regularly by posting questions and comments within lecture material. You should be willing to draw on concepts you learned in other courses or through personal and practical experiences to help you and others make connections.

3. Be prepared to invest!
While this is an online course, that does not mean it will be any less rigorous than a face-to-face course. I will challenge you to learn by applying concepts to practical scenarios, however, you will also be expected to review the material regularly to maximize familiarity. Procrastination will result in you having to resort to cramming to keep up and may compromise your understanding of this foundational material. Remember, EXSC 330 is a prerequisite for future classes and your professional endeavors. It isn’t about “getting through” this class but obtaining new knowledge that will make you more successful in your chosen career path.
CLASS POLICIES

Communication Strategies:

1. If you experience technical issues (unable to access material, quiz not opening, etc.) notify me by using the “Technical Issues” discussion board within the course OAKS page. If you have insight into resolving a technical issue that another student posted in this board I encourage you to respond to the post on the discussion board and help out your classmate!

2. If you have questions about course content or a particular assignment (further clarification on assignment directions) you should post your question in the discussion board for that weekly module.

3. All other comments or concerns regarding the course or personal needs should be expressed to me through email or by making an appointment to virtually meet using Google Hangout.

I will respond to discussion board posts and emails sent Monday-Friday within 24 hours. Posts and emails sent on Saturday and Sunday will be responded to within 48 hours.

Assignment Submission Policy: All assignments are due by 11:59 pm EST as indicated on the syllabus schedule. Unless otherwise specified, assignments should be submitted via the dropbox feature in OAKS. All assignments are to be completed and turned in on time. Late assignments will result in a reduced grade of 20% for each day late. If you are having technical difficulties notify me immediately using one of the outlined communication strategies (see orange section above). Please note, computer failure or unavailability does not constitute an excuse for not completing assignments by the due date. It is your responsibility to ensure you have internet access to successfully complete this course. This may require you to be creative in cases where your original plan for network access falls through (ie. go to a library, coffee shop, etc. if your internet goes out at home).

Due dates are subject to change and students will be notified via the OAKS announcement board. Students are encouraged to subscribe in OAKS to receive notifications about updates. To subscribe, select the down arrow next to the “news” header on the course
home page. Then select the types and methods of notifications you wish to receive. This notification system will greatly improve your ability to stay informed of course-related happenings.

**Honor Code And Academic Integrity:** It is expected that you will conduct yourself within the guidelines of the honor system. (See Student Handbook*) All academic work should be done with the high level of honesty and integrity that this institution demands!

Incidents where the instructor determines your actions are related more to a misunderstanding than intent to deceive will be handled by the instructor. You will be given a written intervention designed to help prevent you from repeating the error. The intervention, submitted along with an honor code violation form will be signed both by the instructor and the student and forwarded to the Dean of Students to be placed in your student record file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. If you are found responsible by the Honor Board for academic dishonesty you may receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. You may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

* You should be aware that unauthorized collaboration--working together without permission--is a form of cheating. Unless the instructor specifies that you can work together on an assignment, project, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

* A complete version of the Honor Code and all related processes can be found in the Student Handbook at [http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php](http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php).
Disability Statement: This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act that stipulates no student shall be denied access to an education “solely by reason of a handicap.” Disabilities covered by law include, but are not limited to, learning disabilities and hearing, sight or mobility impairments. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services, (843) 953-1431 or me so that such accommodation may be arranged. If you have a documented disability that has been approved to receive accommodations through SNAP Services you must provide the instructor with a copy of the recommended accommodation letter provided by the SNAP office in order to meet the accommodation.

ASSessment & Grading

Grading Criteria and Scale: I will calculate your grade based on the total number of points earned from each of the following assessment tools. A grade for every assignment will be posted in the gradebook feature of OAKS so that you can track your progress over the course of the semester. Your grade will not be rounded up at the end of the semester. Please contact the instructor if you feel there is an error with the gradebook.

<table>
<thead>
<tr>
<th>Assessment Tool</th>
<th>Points</th>
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<tbody>
<tr>
<td>3 Exams (75 points each)</td>
<td>225</td>
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<tr>
<td>1 Cumulative final exam</td>
<td>100</td>
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<tr>
<td>6 Quizzes (10 points each)</td>
<td>60</td>
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<tr>
<td>6 Reading comprehension questions (10 points each)</td>
<td>60</td>
</tr>
<tr>
<td>30 Study group quizlet questions (2 points each)</td>
<td>60</td>
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<tr>
<td>Gait analysis video project</td>
<td>100</td>
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<tr>
<td>Movement analysis assignment</td>
<td>25</td>
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<tr>
<td>Arthrokinematics problem set</td>
<td>30</td>
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<tr>
<td>2 Article reflections (30 points each)</td>
<td>60</td>
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<tr>
<td>Class participation (8 points each)</td>
<td>48</td>
</tr>
<tr>
<td>Introduction Assignment</td>
<td>12</td>
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</tbody>
</table>
**Course Assignment Descriptions**

**Exams:** There will be three scheduled exams during the semester. Exams will be administered using OAKS. Exams may consist of a variety of types of questions including but not limited to true/false, matching, multiple choice, fill in the blank, short answer and essay/application. There will be a cumulative final exam for this course that will take place in accordance with the final exam schedule. See the course schedule for this date. Students who have earned an A prior
to the final exam date (90.0% or higher without rounding) can opt out of taking the final exam.

**Quizzes:** There is a large amount of material presented in this class and preparation is key. If you’re not prepared, I believe you will find yourself struggling to keep up with the class content. There will be one quiz within each content module. This quiz will be related to the assigned reading and posted lecture material and will be due by 11:59pm the last day of the module. There will be no makeup quizzes offered. **You may not use any resources or work with other students when completing your online quiz.** You will have a limited time to complete your quiz so pay attention to the posted timer. The quiz will auto-submit when the quiz time runs out.

**You must complete an online quiz related to information covered within this syllabus and the honor code policy. You will have an unlimited amount of time and number of attempts to earn a grade of 100% on the quiz. You must earn a 100% in order to access the content modules within OAKS.**

**Reading Comprehension Questions:** For you each module you will need to complete a set of posted reading comprehension questions. I will write these these questions based off of larger concepts that stem from the assigned readings and will post them within the assignments section within each module. You will type your response and upload it in a .pdf or Microsoft Word file format to the corresponding dropbox within OAKS. You must submit this assignment in order to open up access to the lecture material for the module. For example, there will be a set of reading comprehension questions posted within Module 2. You will complete the assigned reading, respond to the comprehension questions and
submit your assignment within the Reading Comprehension 2 dropbox. Once you’ve submitted your assignment to the dropbox, the posted lecture material for Module 2 will open up for you to view.

**Study Group Quizlet Questions:** You will be placed into a study group with five other students (six students per group). The purpose of this study group is to help build community within an online learning format. I will also assign you and your group members to a group within Quizlet. For each module of the course, you (and your other group members) will be responsible for making five new questions within your group’s quizlet, for a total of 30 questions per module. The purpose of these questions is to help you consistently review the material throughout the duration of the course and review for tests. You will earn two points for each question you write for up to a total of 10 points per module. Be sure to indicate the correct answer as incorrect quizlet questions will result in a point deduction. You should not duplicate a question that another group member has already written so be sure to review the quizlet questions prior to contributing your five questions. When writing your quizlet questions consider the learning objectives for each module and feel free to use images to test your group member’s knowledge. **For each new module the group should create a new study set and label it as “Group __ Module __.”**

**Gait Analysis Video Presentation Assignment:** You will create a gait analysis video by selecting two people who present with differing gait patterns. You will record the individuals walking and running and provide a concise yet informative analysis of their gait parameters. To successfully complete this assignment you will: 1) use appropriate terminology to describe the various phases of gait; 2) correctly identify the individual’s unique gait mechanics; 3) use various applications and technology tools to create a quality presentation. Refer to the assignment posted on OAKS for more specifics related to this assignment and links to technology tutorials. If you do not personally possess the necessary equipment (digital recording capability, iMovie) you will have the opportunity to reserve an iPad to use to complete this assignment.

**Movement Analysis Assignment:** For this assignment you will be provided a picture of a person performing a movement (sport, physical activity related) and a blank table. You will complete the table by identifying the anatomic position of each joint and limb and plane of motion according to the position of the person in the picture.

**Article Reflections:** The goal of this assignment is for you to become comfortable with reading, critiquing and applying scientific literature with the long-term
goal of becoming scholarly healthcare providers. You will complete 2 different assignments that will accomplish this goal. Each assignment will include reading a recent, peer-reviewed, published research article. You will be required to respond to discussion question prompts, and design an infographic that highlights the article’s research findings. The instructor will provide the articles by posting them on OAKS and you will submit your assignment via the OAKS dropbox tool. More specifics related to these assignments will be posted on OAKS.

**Arthrokinematics Problem Set:** This assignment will require you to apply the convex-concave rule to determine arthrokinematic and osteokinematic motions at different joints. Examples related to this problem set will be given through the course content.

**Class Participation:** Regular and active participation is an essential part of this online class! Each module will be composed of a series of interactive lectures. These lectures are not designed to replace the assigned readings, but instead to enhance and facilitate application of the information found in the text. You will be expected to view and participate in each of these lectures. VoiceThread will be used as the primary means for facilitating this course component. I encourage you to view the responses posted by your classmates before responding. Please do not duplicate information already posted by another student. You may agree or disagree respectfully with someone else’s post, but you must add to the discussion. If you don’t have anything to add to the discussion, wait and respond to the next discussion opportunity within the module. There will be multiple discussion opportunities provided within each module. You must comment using the video feature within VoiceThread.

Class Participation comments through VoiceThread that are submitted after the posted deadline or not using the video feature will not be accepted and will not be graded. I will post your participation grade within the OAKS gradebook on a weekly basis. To have a better understanding of how I will be grading you on this assignment please refer to the Class Participation Grading Rubric posted under the “Assignments” section within “Course Information.”
**Introduction Picture:** The purpose of this assignment is to help create a sense of class community by getting to know a little bit about everyone in the class. Within the Introduction Module discussion board titled “Nice to Meet You!” create a new thread and upload a picture of yourself that represents something about you. In addition to the picture, introduce yourself by answering the following questions:
1. What do you hope to do “when you grow up”?
2. What is one fun fact about yourself?
3. What is one thing you like to do and do well?
4. What is one thing you like to do and would like to be able to do better?
5. What is your favorite website or app, and why?
See my example within the OAKS discussion board!

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**COURSE SCHEDULE**

**Introduction Module: Course Navigation**

**Topics:**
- Course structure
- Expectations
- Class introductions

**Tasks:**
- Syllabus & honor code quiz
- Introduction Assignment

**Module 1: Introduction to Human Movement**

**Topics:**
- Kinesiological Terminology
- Reference Planes
- Kinetics & torque
- Arthrokinematics vs. Osteokinematics

**Tasks:**
- Reading: Brunnstrom chapters 1 & 2
- Reading comprehension questions 1
- View posted lecture material
- Class Participation
- Movement Analysis
- Create Quizlet questions
- Quiz 1
Module 2: The Skeletal System and Articulation

Topics:
- Bone Structure & Loading
- Mechanism of Injury
- Long-term consequence of injury

Tasks:
- Reading: Hamill chapter 2, Sarzi-Puttini article
- Reading comprehension questions 2
- View posted lecture material
- Class Participation
- Arthrokinematics Problem Set
- Create Quizlet questions
- Quiz 2
- Exam 1: Modules 1 & 2

Module 3: The Neuromuscular System

Topics:
- Afferent vs. efferent pathways
- Proprioception
- Feedforward vs. feedback control
- Muscle function, architecture & contraction types
- Force curves & measurement
- Consequence of injury

Tasks:
- Reading: Brunnstom chapters 3 & 4
- Reading comprehension questions 3
- View posted lecture material
- Class Participation
- Create Quizlet questions
- Article Reflection 1
- Quiz 3

Module 4: Applied Anatomy of the Lower Extremity

Topics:
- Hip
- Knee
- Ankle & foot
- Phases of gait
- Variable gait patterns
- Pathological gait patterns

Tasks:
- Reading: Brunnstom chapters 9-12
- Reading comprehension questions 4
- View posted lecture material
- Class Participation
- Create Quizlet questions
- Quiz 4
- Exam 2: Modules 3 & 4
Module 5: Applied Anatomy of the Upper Extremity

Topics:
- Shoulder girdle
- Rotator cuff function
- Scapulohumeral rhythm
- Elbow & forearm
- Wrist & hand
- Phases of throwing
- Pathomechanics of throwing

Tasks:
- Reading: Brunnstom chapters 5-7, Kibler article
- Reading comprehension questions 5
- View posted lecture material
- Class Participation
- Create Quizlet questions
- Quiz 5
- Gait Analysis Project


Topics:
- Spine structure and posture
- Global movers vs. local stabilizers
- Spine pathomechanics

Tasks:
- Reading: Brunnstom chapter 8
- Reading comprehension questions 6
- View posted lecture material
- Class Participation
- Create Quizlet questions
- Article Reflection 2
- Quiz 6
- Exam 3: Modules 5 & 6

Course Schedule

*Subject to Change*

<table>
<thead>
<tr>
<th>Module/Topic</th>
<th>Module Dates</th>
<th>Assignments and Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction: Course Navigation</td>
<td>1/11-1/17</td>
<td>1. Syllabus and honor code quiz: 1/17</td>
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<tr>
<td></td>
<td></td>
<td>2. Introduction Assignment: 1/17</td>
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<tr>
<td>1: Introduction to Human Movement</td>
<td>1/18-1/31</td>
<td>1. Reading comprehension: 1/24</td>
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<tr>
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<td>2. Quizlet questions: 1/29</td>
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<td>3. Class Participation: 1/31</td>
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<tr>
<td></td>
<td></td>
<td>4. Movement Analysis: 1/31</td>
</tr>
<tr>
<td>Course Description</td>
<td>Start Date</td>
<td>End Date</td>
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<td>---------------------------------------------------------</td>
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</tbody>
</table>
| 2: The Skeletal System and Articulations               | 2/1-2/14         |              | 1. Reading Comprehension: 2/7  
2. Quizlet questions: 2/12  
3. Class Participation: 2/14  
4. Arthrokinematics Problem Set: 2/14  
5. Quiz 2: 2/14  
6. Exam 1: 2/14 |
2. Quizlet questions: 2/26  
3. Class Participation: 2/28  
4. Article Reflection 1: 2/28  
5. Quiz 3: 2/28 |
2. Quizlet questions: 3/24  
3. Class Participation: 3/28  
4. Quiz 4: 3/28  
5. Exam 2: 3/28 |
2. Quizlet questions: 4/9  
3. Class Participation: 4/11  
5. Quiz 5: 4/11 |
2. Quizlet questions: 4/21  
3. Class Participation: 4/25  
4. Article Reflection 2: 4/25  
5. Quiz 6: 4/25  
| Final Exam                                             | 4/30             |              | Final Exam                                                      |