

SPECIAL TOPICS: CORRECTIVE EXERCISE TRAINING

PET5936 ~ 3 CREDITS ~ SPRING 2021

INSTRUCTOR: **Blain Harrison, Ph.D, ATC, CSCS**
Office: 106B FLG
Office Phone: 352-294-1704
Email: blainharrison@ufl.edu
Preferred Method of Contact: email

OFFICE HOURS: Virtual office hours by appointment

MEETING TIME/LOCATION: CANVAS platform

COURSE DESCRIPTION: Examines fundamental concepts of human movement and movement impairments on musculoskeletal injury risk. Includes evidence based program design and practical skills necessary to successfully identify and correct movement impairments in active populations. Content will prepare students to sit for the NASM Corrective Exercise Specialist certification.

PREREQUISITE KNOWLEDGE AND SKILLS: None

REQUIRED MATERIALS:

Textbook: Fahmy, Rich (Ed). NASM Essentials of Corrective Exercise Training Second Edition. Jones & Bartlett Learning. 2022. ISBN: 978-1-284-20089-8

The following research articles are provided to the student within the Canvas course page

1. Cook G, Burton L, Hoogenboom BJ, Voight M. Functional movement screening: the use of fundamental movements as an assessment of function - part 1. International Journal of Sports Physical Therapy. 2014 May;9(3):396-409.

2. Cook G, Burton L, Hoogenboom BJ, Voight M. Functional movement screening: the use of fundamental movements as an assessment of function-part 2. *International Journal of Sports Physical Therapy*. 2014 Aug;9(4):549-563.
3. Hamm, N. C., Kehler, D. S., Hay, J. L., Stammers, A. N., Strachan, S. M., Bouchard, D. R., & Duhamel, T. A. (2019). A Quasi-Experimental Study Examining the Impact and Challenges of Implementing a Fitness-Based Health Risk Assessment and a Physical Activity Counseling Intervention in the Workplace Setting. *Health services research and managerial epidemiology*, 6, 2333392819884183.
4. Kritz, M. F., & Cronin, J. (2008). Static posture assessment screen of athletes: Benefits and considerations. *Strength & Conditioning Journal*, 30(5), 18-27.
5. Weekly Research Article 1: Worst, H., Henderson, N., Decarreau, R., & Davies, G. (2019). A Novel Test to Assess Change Of Direction: Development, Reliability, And Rehabilitation Considerations. *International journal of sports physical therapy*, 14(2), 228.
6. Weekly Research Article 1: Fong, C. M., Blackburn, J. T., Norcross, M. F., McGrath, M., & Padua, D. A. (2011). Ankle-dorsiflexion range of motion and landing biomechanics. *Journal of athletic training*, 46(1), 5-10.
7. Kelln, B. M., McKeon, P. O., Gontkof, L. M., & Hertel, J. (2008). Hand-held dynamometry: reliability of lower extremity muscle testing in healthy, physically active, young adults. *Journal of sport rehabilitation*, 17(2), 160-170.
8. Skinner, B., Moss, R., & Hammond, L. (2020). A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE EFFECTS OF FOAM ROLLING ON RANGE OF MOTION, RECOVERY AND MARKERS OF ATHLETIC PERFORMANCE. *Journal of Bodywork and Movement Therapies*.
9. Wanderley, D., Lemos, A., Moretti, E., Barros, M. M. M. B., Valença, M. M., & de Oliveira, D. A. (2019). Efficacy of proprioceptive neuromuscular facilitation compared to other stretching modalities in range of motion gain in young healthy adults: A systematic review. *Physiotherapy theory and practice*, 35(2), 109-129.
10. Reece, M. B., Arnold, G. P., Nasir, S., Wang, W. W., & Abboud, R. (2020). Barbell back squat: how do resistance bands affect muscle activation and knee kinematics?. *BMJ Open Sport & Exercise Medicine*, 6(1).
11. Mahdih, L., Zolaktaf, V., & Karimi, M. T. (2020). Effects of dynamic neuromuscular stabilization (DNS) training on functional movements. *Human Movement Science*, 70, 102568.
12. Bagherian, S., Rahnama, N., & Wikstrom, E. A. (2019). Corrective exercises improve movement efficiency and sensorimotor function but not fatigue

- sensitivity in chronic ankle instability patients: a randomized controlled trial. *Clinical Journal of Sport Medicine*, 29(3), 193-202.
13. Jafarnezhadgero, A. A., Majlesi, M., Etemadi, H., Hilfiker, R., Knarr, B. A., & Shad, M. M. (2020). Effect of 16-week corrective training program on three dimensional joint moments of the dominant and non-dominant lower limbs during gait in children with genu varus deformity. *Science & Sports*, 35(1), 44-e1.
 14. Madadi-Shad, M., Jafarnezhadgero, A. A., Sheikhalizade, H., & Dionisio, V. C. (2020). Effect of a corrective exercise program on gait kinetics and muscle activities in older adults with both low back pain and pronated feet: A double-blind, randomized controlled trial. *Gait & Posture*, 76, 339-345.
 15. Arshadi, R., Ghasemi, G. A., & Samadi, H. (2019). Effects of an 8-week selective corrective exercises program on electromyography activity of scapular and neck muscles in persons with upper crossed syndrome: Randomized controlled trial. *Physical Therapy in Sport*, 37, 113-119.

COURSE FORMAT:

Students access and complete course assignments through the PET5936 Canvas page. Course topics are organized into weekly learning modules. Each module includes 4 assignments corresponding with the modules learning materials (i.e. textbook reading lecture video and associated lab lecture video). A midterm exam and final exam are included in addition to module assignments. Students will have access to an individual module's assignments a minimum of one week prior to the week the module is included in the course syllabus. Each Monday, the following week's assignments will become available on Canvas. Students may work at their own pace, and all module assignments are due by 11:59pm on the Sunday before the final exam.

COURSE LEARNING OBJECTIVES: By the end of this course students will be able to:

1. Administer and interpret the results from the Functional Movement Screen and the Fundamental Capacity Screen according to guidelines from Functional Movement Systems, Inc.
2. Summarize the components of the NASM Corrective Exercise Continuum
3. Explain movement errors using terminology associated with functional anatomy, biomechanics, and motor control
4. List the integrated functions of skeletal muscles involved in human movement
5. Describe the etiology of human movement system impairment and the risk of it generating a cumulative injury cycle
6. Collect health information to appraise the risk of injury or illness with exercise
7. Assess static and dynamic posture to identify risks of human movement impairment according to NASM guidelines for a Corrective Exercise Specialist.

8. Differentiate the roles individual skeletal muscles may play in identified human movement impairment
9. Determine potential muscle imbalances from the results of transitional and dynamic movement assessments according to NASM guidelines for a Corrective Exercise Specialist.
10. Measure range of motion at individual joints in the planes of motion available at each according to NASM guidelines for a Corrective Exercise Specialist.
11. Administer manual muscle tests to selected muscles based on assessment results according to NASM guidelines for a Corrective Exercise Specialist.
12. Design and administer corrective exercise programs using the NASM Corrective Exercise Continuum
13. Describe best practice recommendations for corrective exercise strategies at common sites of musculoskeletal injury according to NASM guidelines for a Corrective Exercise Specialist.

COURSE AND UNIVERSITY POLICIES:

ATTENDANCE POLICY:

Active participation in the course is mandatory. Points assigned to the chapter questions, Research Article questions, YellowDig message board posts, and Weekly lab assignments are all counted as participation points. The accumulation of participation points over the semester designates the participation grade. Late submissions of weekly participation assignments will not be accepted and a grade of 0 will be given for the assignment.

PERSONAL CONDUCT POLICY:

Students are expected to review and adhere to the UF Netiquette guide for online courses

<http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions.

Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult the instructor or TA in this class.

EXAM MAKE-UP POLICY:

Exams may NOT be submitted late. Students will have access to exams for one week prior to the due date.

ACCOMMODATING STUDENTS WITH DISABILITIES:

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

COURSE EVALUATIONS:

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://gatorevals.ua.ufl.edu/>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://gatorevals.ua.ufl.edu/>.

GETTING HELP:

Health and Wellness

- U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575
- Counseling and Wellness Center: <https://counseling.ufl.edu/>, 352-392-1575
- Sexual Assault Recovery Services (SARS) - Student Health Care Center, 392-1161
- University Police Department, 392-1111 (or 9-1-1 for emergencies)
<http://www.police.ufl.edu/>

Academic Resources

- E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>
- Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling. <https://career.ufl.edu/>
- Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio/>

- Student Complaints On-Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/> On-Line Students Complaints: <http://distance.ufl.edu/student-complaint-process/>

GRADING:

Evaluation Components (number of each)	Points Per Component	Weighted % of Total Grade
Textbook Reading Questions	150 points	5%
Weekly Laboratory Questions	150 points	5%
Research Article Questions	150 points	5%
Yellowdig Participation	100 points	5%
Article Synopses (x5)	50 points	5%
Applied Corrective Exercise Program Project	50 points	15%
Midterm Exam	50 points	25%
Comprehensive Final	100 pts	35%
Total Points	700 points	

Textbook Reading Questions - An assignment consisting of 10 objective questions pertaining to the corresponding textbook chapter is included when a chapter is assigned within a module. Students have unlimited attempts on these assignments and the due date of the final attempt is Sunday, April 25th. The highest score from any of the attempts will be factored into the final grade. Students may use the textbook while completing the questions, Honorlock is NOT required, and there is no time limit on any of the attempts. These are effectively participation assignments.

Weekly Laboratory Questions - Each of the 15 learning modules contains practical skills laboratory learning materials provided by the instructor including assessment and exercise skills necessary to prepare for the NASM Corrective Exercise Specialist exam. An assignment consisting of 5-10 objective questions pertaining to the corresponding Canvas laboratory material is included within each learning module. Students have unlimited attempts on these assignments and the due date of the final attempt is Sunday, April 25th. The highest score from any of the attempts will be factored into the final grade. Students may use the canvas readings while completing the questions, Honorlock is NOT required, and there is no time limit on any of the attempts. These are effectively participation assignments.

Research Article Questions - Each of the 15 learning modules includes one peer-reviewed research article for students to read. An assignment consisting of 5-10 objective questions pertaining to the research article is included within the learning module. Students have unlimited attempts on these assignments and the due date of the final attempt is Sunday, April 25th. The highest score from any of the attempts will

be factored into the final grade. Students may use the research articles while completing the questions, Honorlock is NOT required, and there is no time limit on any of the attempts. These are effectively participation assignments.

Yellowdig Participation - This course incorporates an application called Yellowdig that provides a social media-like discussion board providing opportunities for engagement and discussion between classmates and the instructor. Points are earned for each interaction a student has with the Yellowdig platform. Students have the ability to earn a maximum total of 1,200 points each week in Yellowdig and the app sums the weekly totals throughout the semester to create a cumulative final point total. Students earning totals of 12,000 points or higher in Yellowdig by Sunday, April 25 will earn a score of "100" for the Yellowdig Participation assignment on Canvas. The percentage of total points out of 12,000 will be used as the grade for the Yellowdig Participation Assignment on Canvas for students earning less than 12,000 total points.

Article Synopses - Students are expected to post a minimum of 5 research article synopses to the Yellowdig discussion board by Sunday, April 25th at 11:59pm. Each article synopsis requires students to search a relevant database of research journals (i.e. Google Scholar, SportDiscus, PubMed) to find a peer-reviewed research article related to one of the course topics. Students should read the selected articles in their entirety and then post a brief synopsis of the article(s) to Yellowdig. The synopsis should be written and should include the following headers: 1. Reason for Selection 2. Research Problem 3. Methods 4. Results/Conclusions 5. Takeaways. Students should briefly summarize why they selected the article, what research problem was addressed in the article, how the experiment was conducted, the most important results and explanations for the results provided by the authors of the study, and what information from the article can be used by classmates in their corrective exercise decision making processes.

Applied Corrective Exercise Program Project – Students will design and administer a 4-week corrective exercise training program related to the outcome of posture, mobility, strength, and movement assessments performed on another individual. The assessments will be completed by the end of week 9 and the training program will be administered throughout weeks 10 – 13. Weekly updates of training progress are required to be submitted to Canvas for review by the instructor. Students will conduct a health risk appraisal, FMS, FCS, along with NASM Static, Movement, and Mobility Assessments in order to establish 3 SMART goals of the 4-week corrective exercise program and determine if the goals were met at the end of the program. A written document will be submitted to Canvas for grading and students will create a 10-min slide presentation describing the outcomes of the exercise program using Zoom. The document and presentation are due Sunday of the final week of the semester. The following rubric will be provided within the assignment instructions.

Rubric:

	0 – 2 points	3 – 6 points	7 – 10 points
Assessment	Photo or Video evidence of assessments is missing as is a complete analysis of the results of each	Photo or Video evidence of assessments is present but the analysis of results is incomplete	Photo or Video evidence of assessments is present and the analysis of results is complete
SMART Goals	Goals are improperly formatted and unrelated to assessment results	Goals are improperly formatted but are related to assessment results	Goals are properly formatted and are related to assessment results
Exercise Prescription	Prescriptions are improperly formatted and unrelated to achieving SMART goals	Prescriptions are improperly formatted but are related to achieving SMART goals	Prescriptions are properly formatted and are related to achieving SMART goals
Analysis of Results	Explanation of successes and short-comings of the program as related to achieving SMART goals is missing	Explanation of successes and short-comings of the program as related to achieving SMART goals is incomplete	Explanation of successes and short-comings of the program as related to achieving SMART goals is complete
Presentation	3 or more elements of the component parts of the program (Assessment, Goals, Prescription, Analysis) are missing from the presentation	1-2 elements of the component parts of the program (Assessment, Goals, Prescription, Analysis) are missing from the presentation	No elements of the component parts of the program (Assessment, Goals, Prescription, Analysis) are missing from the presentation

Midterm Exam – The midterm exam will consist of 50 objective questions (multiple choice, matching, true/false) worth 1 point each. Questions will require the application of course material or knowledge of basic scientific principles covered within each of the first 8 learning modules. Exam questions are generated by the course instructor and students should prepare for the exam by completing all weekly course readings and assignments prior to the exam. Students will take the exam online and will be required

to utilize the Honorlock proctoring service when completing the exam. Students will complete the exam within the 24 hours of the date designated on the course schedule.

Cumulative Final Exam - The cumulative final exam will consist of 100 objective questions (multiple choice, matching, true/false) worth 1 point each. Questions will require the application of course material or knowledge of basic scientific principles covered within each of the 15 learning modules. Exam questions are generated by the course instructor and students should prepare for the exam by completing all weekly course readings and assignments prior to the exam. Students will take the exam online and will be required to utilize the Honorlock proctoring service when completing the exam. Students will complete the exam within the 24 hours of the date designated on the course schedule.

GRADING SCALE: All course assignments are administered and graded within the APK6XXXc Canvas course page, so students will have access to all grades as they submit assignments. Any assignment that requires the instructor to manually grade some aspect of it will be graded within one week of its due date, including the semester exams and final project. Final Grades will be rounded up at __.5 and above. More detailed information regarding current UF grading policies can be found here: <http://gradcatalog.ufl.edu/content.php?catoid=12&navoid=2750#grades> . Any requests for additional extra credit or special exceptions to these grading policies will be interpreted as an honor code violation (i.e. asking for preferential treatment) and will be handled accordingly.

Letter Grade	Percent of Total Points Associated with Each Letter Grade	GPA Impact of Each Letter Grade
A	93-100%	4.0
A-	90 – 92.5%	3.7
B+	87.00-89.5%	3.33
B	80.00-86.5%	3.0
C+	77.00-79.5%	2.33
C	70.00-76.5%	2.0
D+	67.00-69.5%	1.33
D	60.00-66.5%	1.0
E	0-59.5%	0

Activities - Two to three optional activities are included in each course learning module. These activities are intended to provide students with additional opportunities to prepare for exams. Performance on module activities does not impact a student's final grade.

WEEKLY COURSE SCHEDULE:

<i>Week</i>	Dates	Topic	Chapter
1	(1/11 – 1/15)	Rationale for Corrective Exercise Lab: Functional Movement Screen Part 1	1
2	(1/18 – 1/22)	Human Movement Science and Corrective Exercise Lab: FMS Part 2	2
3	(1/25 – 1/29)	Client Intake and Assessment Self-Care and Recovery Lab: Fundamental Capacity Screen Part 1	7, 17
4	(2/1 – 2/5)	Static Assessments Lab: FCS Part 2 Static Posture Assessment	8
5	(2/8 – 2/12)	Movement Assessments Lab: Movement Assessments	9
6	(2/15 – 2/19)	Mobility Assessments Lab: Mobility Assessments	10
7	(2/22 – 2/26)	Inhibitory Techniques Lab: Self-Myofascial Release	3
8	(3/1 – 3/5)	Lengthening Techniques Lab: PNF Stretching Midterm Exam 3/5	4
9	(3/8 – 3/12)	Activation Techniques Lab: Activation Techniques	5
10	(3/15 – 3/19)	Integration Techniques Lab: Reactive Neuromuscular Training	6
11	(3/22 – 3/26)	Corrective Strategies for Foot and Ankle Impairments Lab: Foot and Ankle Corrective Exercises	11
12	(3/29 – 4/2)	Corrective Strategies for Knee Impairments Lab: Knee Corrective Exercises	12
13	(4/5 – 4/9)	Corrective Strategies for Lumbo-Pelvic-Hip, T-Spine, and Shoulder Lab: LPH Corrective Exercises	13, 14
14	(4/12 – 4/16)	Corrective Strategies for C-Spine, Elbow, and Wrist Lab: Upper Extremity Corrective Exercises	15, 16
15	(4/19 – 4/21)	Real World Application of Corrective Exercise Strategies Lab: C-Spine Corrective Exercises	18

SUCCESS AND STUDY TIPS:

- Utilize the module assignments as study tools. You may complete the chapter reading questions, laboratory questions, and research article questions within each module as many times as you like with the highest score being used to calculate your final grade. Complete the assignments while you are working through the module and then again when you are reviewing for the exams.
- Read textbook chapters and research articles carefully
- There are lots of participation points that collectively account for a large percentage of your grade. Performing well on exams is not enough to earn an A in this course, you must participate in the course by completing all assignments.