

## SPECIAL TOPICS: CORRECTIVE EXERCISE TRAINING

PET5936 ~ 3 CREDITS ~ SPRING 2022

**INSTRUCTOR:**

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**OFFICE HOURS:** Office hours are by appointment on zoom (<https://ufl.zoom.us/j/2229465950>). You can use an app called Calendly to schedule a time: <https://calendly.com/bcharrison>

**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 (Corrective Exercise) Canvas page. Course topics are organized into weekly learning modules. Each module includes 3 practice activities corresponding with the module's learning materials (i.e. textbook reading, research articles, and associated lecture videos) as well as a graded module quiz. Graded program design assignments are included in 10 of the 15 learning modules. A midterm exam and final exam are included in addition to the module assignments. Students will have access to learning modules and accompanying assignments at least one week prior to their dates in the course schedule. Students may work at their own pace but must progress according to the course schedule of topics and assignment due dates.

**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 mobility at individual joints in the planes of motion available at each according to NASM guidelines for a Corrective Exercise Specialist.
11. Design and administer corrective exercise programs using the NASM Corrective Exercise Continuum
12. 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. Students are permitted unlimited attempts on module practice assignments so that they may review any missed questions or prepare for quizzes and exams. Interaction with the course online Yellowdig discussion board is part of the final grade in the course.

### **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. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

**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.aa.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.aa.ufl.edu/>.

**GETTING HELP:****Health and Wellness**

- U Matter, We Care: If you or a friend is in distress, please contact [umatter@ufl.edu](mailto: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](mailto: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/>

**IDEA Statement:** The instructor strives to create an accessible and inclusive environment that is equal for all students regardless of race, gender, ethnicity, or ability. Derogatory, rude, or hurtful interactions with classmates or the instructor are not tolerated. Questions or concerns related to this statement are welcomed by the instructor or may be addressed to members of the APK IDEA Committee: Dr. Josie Ahlgren ([jahlgren@ufl.edu](mailto:jahlgren@ufl.edu)), Dr. Linda Nguyen ([linda.nguyen@ufl.edu](mailto:linda.nguyen@ufl.edu)) or Dr. Leo Ferreira ([ferreira@ufl.edu](mailto:ferreira@ufl.edu)).

## GRADING:

Evaluation Components	Points Per Component	Weighted % of Total Grade
Module Quizzes	140 points	20%
Program Design Assignments	120 points	15%
Yellowdig Participation	100 points	10%
Article Synopsis (x4)	40 points	10%
Midterm Exam	50 points	20%
Final Exam	50 points	25%

**Module Quizzes** - Each learning module contains a graded quiz consisting of 10 objective questions related to all components of the module. Quiz questions will be randomly selected from a test bank. Quizzes are not timed; however, the Honorlock proctoring service is required to complete each quiz. Honorlock is included on the e-Learning platform and no additional downloads are required. All quizzes are available from the first day of classes, but each module has a due date corresponding to the end of the week of the module according to the course schedule. Specifically, quizzes are due by Monday at 2:59am EST (Sunday at 11:59pm PST) each week.

**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 2,000 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 15,000 points or higher in Yellowdig by Saturday, April 23rd, 2022 at 2:59am EST will earn a score of "100" for the Yellowdig Participation assignment on Canvas. The percentage of total points out of 15,000 will be used as the grade for the Yellowdig Participation Assignment on Canvas for students earning less than 15,000 total points. Yellowdig is included within e-Learning, no additional downloads are required. Students earning the semester-long maximum number of available points in Yellowdig (30,000 total points) will earn extra-credit in the form of 1-point being added to their overall final course grade.

**Article Synopses** - Students are expected to post a minimum of 4 research article synopses to the Yellowdig discussion board by the end of the semester (due dates are Sunday Feb 6, March 6, April 3, and April 24). 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 and to the corresponding assignment in e-Learning. 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 strength and conditioning decision making processes. A pdf copy of the article should be uploaded to both the Yellowdig post and e-Learning assignment. The same written synopsis can be submitted to both Yellowdig and e-Learning.

Students are given the option of creating one multiple choice question related to their article and posting it to Yellowdig along with their synopsis to earn 1 bonus point. Classmates who choose to answer the question, and do so correctly, will also earn 1 bonus point. Bonus points earned through answering article synopsis questions will be added to module quiz scores of less than 10/10, beginning with the lowest quiz score. A maximum of 10 bonus points may be earned towards increasing quiz scores.

**Extra Credit** - Each learning module contains an extra credit assignment. The assignment involves students creating up to 2 practice questions from the module's learning material for inclusion within the practice question banks in the course. Each new question created is worth 0.5 bonus points (for a total of 1 bonus point) to be added to the next closest exam to the module (either the midterm or the final exam). Extra credit assignments are due at 2:59am EST on Saturdays at the end of the week the module is assigned in the course schedule. This due date allows the instructor to add all extra credit questions to the practice question bank in time for students to use them to prepare for the weekly module quizzes due Sunday nights.

**Applied Corrective Exercise Program Project** – Students will design 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 10 and the training program will be administered throughout weeks 11 – 14. 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 formatted spreadsheet is provided on Canvas along with instructions for adding required information to it for grading. The spreadsheet will be uploaded to Canvas by the assigned due date of the project for grading. Students will be assigned a peer review of a classmate's submission the day after each assignment is due. Peer reviews must be completed within one week of being assigned. Peer reviews are completed by filling out a provided rubric within Canvas and offering comments about any scores on the rubric that are low

**Midterm Exam** – The midterm exam consists 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 7 learning modules. Exam questions are generated by the course instructor and are randomly selected from a singular test bank with questions from the first 7 learning modules. Students should prepare for the exam by completing all weekly course readings, practice activities, and module quizzes prior to the exam. The exam is not timed; however, the Honorlock proctoring service is required to complete it. Honorlock is included on the e-Learning platform and no additional downloads are required. Two attempts are allowed on the exam and the **highest** earned score will count towards the final grade. Students will be able to view their questions but unable to view correct answers between attempts. The exam will be available for one week following Module 7 in the course schedule and is due Monday, February 28 at 2:59am EST (Sunday, February 27 at 11:59pm PST)

**Cumulative Final Exam** - The cumulative final exam will consist of 100 objective questions (multiple choice, matching, true/false) worth 0.5 point each. Questions will require the application of course material or knowledge of basic scientific principles covered within each of the 14 learning modules. Exam questions are generated by the course instructor and are randomly selected from a singular test bank with questions from all 14 learning modules. Students should prepare for the exam by completing all weekly course readings, practice activities, and module quizzes prior to the exam. The exam is not timed; however, the Honorlock proctoring service is required to complete it. Honorlock is included on the e-Learning platform and no additional downloads are required. Two attempts are allowed on the exam and the **highest** earned score will count towards the final grade. Students will be unable to view their questions nor answers between attempts. The exam will be available during final exam week and is due Saturday, April 30 at 2:59am EST (Friday, April 29 at 11:59pm PST)

**Module Activities** - Approximately three ungraded practice assignments are available in each of the 14 learning modules. Links to the practice assignments are under the "Practice" header on the module learning page. The practice assignments correspond to the learning material in the module. They may be completed an unlimited number of times, Honorlock is not required, and questions and answers are viewable between attempts. All practice assignments are available from the first day of the course and there are no due dates. These are optional assignments designed to help students gauge their comprehension and application of course learning material.

**\*Note Regarding Program Comprehensive Exam** – If you choose PET5936 as one of the courses to include within your comprehensive exam, know that the exam will contain 60 objective questions (multiple choice, true/false, matching) that are pulled at random from a question bank similar to the quizzes and exams in this course. If you complete the exam in a future semester, you will be able to access this PET5936 Canvas course and review lecture videos and exam questions and answers. If you complete the exam during this semester, you will need to work ahead in the course to ensure you have been introduced to all of the topics that are found on it. All modules and assignments are available from the first week of the course. I recommend completing the practice quizzes in each module as many times as needed to gain practice with course content not yet covered by the time you take the exam.

**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	92.5-100%	4.0
A-	89.5 – 92.49%	3.7
B+	86.50-89.49%	3.33
B	79.50-86.49%	3.0
C+	76.50-79.49%	2.33
C	69.50-76.49%	2.0
D+	66.50-69.49%	1.33
D	59.50-66.49%	1.0
E	0-59.49%	0

## WEEKLY COURSE SCHEDULE:

<b>Week</b>	<b>Dates</b>	<b>Topic</b>	<b>Chapter</b>
1	1/5 - 1/7	Rationale for Corrective Exercise Lab: Functional Movement Screen Part 1	1
2	1/10 - 1/14	Human Movement Science and Corrective Exercise Lab: FMS Part 2	2
3	1/17 - 1/21	Client Intake and Assessment Self-Care and Recovery Lab: Fundamental Capacity Screen Part 1	7, 17
4	1/24 - 1/28	Static Assessments Lab: FCS Part 2 Static Posture Assessment	8
5	1/31 - 2/4	Movement Assessments Lab: Movement Assessments	9
6	2/7 - 2/11	Mobility Assessments Lab: Mobility Assessments	10
7	2/14 - 2/18	Inhibitory Techniques Lab: Self-Myofascial Release	3
8	2/21 - 2/25	<b>Midterm Exam Due 2/27</b>	
9	2/28 - 3/4	Lengthening/Activation Techniques Lab: PNF Stretching /Activation Techniques	4, 5
10	3/7 - 3/11	<b>Spring Break</b>	
11	3/14 - 3/18	Integration Techniques Lab: Reactive Neuromuscular Training	6
12	3/21 - 3/25	Corrective Strategies for Foot and Ankle Impairments Lab: Foot and Ankle Corrective Exercises	11
13	3/28 - 4/1	Corrective Strategies for Knee Impairments Lab: Knee Corrective Exercises	12
14	4/4 - 4/8	Corrective Strategies for Lumbo-Pelvic-Hip, T-Spine, and Shoulder Lab: LPH Corrective Exercises	13, 14
15	4/11 - 4/15	Corrective Strategies for C-Spine, Elbow, and Wrist Lab: Upper Extremity Corrective Exercises	15, 16
16	4/18 - 4/20	Real World Application of Corrective Exercise Strategies Lab: C-Spine Corrective Exercises	18

The Final Exam will be available beginning at 12am Saturday, April 23<sup>rd</sup> and is due by Saturday, April 30<sup>th</sup> at 2:59am EST.

### SUCCESS AND STUDY TIPS:

- Utilize the module practice assignments as study tools. You may complete them as many times as you like. Complete the assignments while you are working through the module and then again when you are reviewing for the exams.
- Read textbook chapters, canvas readings, and research articles carefully.
- Twenty percent of the final grade comes from participation activities including posting comments to the Yellowdig board and submitting the research article synopses. Take advantage of these assignments to bring up any quiz or exam grades in which you are disappointed.