

STRENGTH AND CONDITIONING

APK6176 ~ 3 CREDITS ~ SPRING 2021

INSTRUCTOR:

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Method of Contact: email

OFFICE HOURS: Office Hours are Mon from 10:30-11:30am (EST) or by appointment

MEETING TIME/LOCATION: CANVAS platform (online sections); Mon 1:55-4:55PM
FLG210 (residential section)

COURSE DESCRIPTION: This course addresses the principles of designing training programs of varying duration aimed at improving muscular strength, power, speed, agility, endurance, balance, stability, and hypertrophy. Emphasis will be placed on creating and administering evidence-based periodized training programs and ensuring safe and productive technique of fundamental exercises in each modality.

PREREQUISITE KNOWLEDGE AND SKILLS: None

REQUIRED AND RECOMMENDED MATERIALS:

Moir, G.L. *Strength and Conditioning A Biomechanical Approach*. Jones & Bartlett Learning. 2016. ISBN:9781284034844

Additional required reading materials are provided to you within the Canvas course website including the following list of research articles:

1. Kraemer, W.J., et al. *Understanding the Science of Resistance Training: An Evolutionary Perspective*. Sports Med (2017) 47:2415-2435
2. Soriano, M.A., Suchomel, T.J., and P.J. Marin. *The Optimal Load for Maximal Power Production During Lower-Body Resistance Exercises: A Meta-Analysis*. Sports Med (2015) 45:1191-1205

3. Howe, L.P. Muscle Hypertrophy: A Narrative Review on Training Principles for Increasing Muscle Mass. *Strength and Conditioning Journal*. 39(5), p. 72-82.
4. Fradkin, A.J., Zazryn, T.R., and J.M. Smoliga. *Effects of Warming-Up on Physical Performance: A Systematic Review with Meta-Analysis*. *J Strength Cond Res* 24(1): 140-148. 2010
5. Shrier, I. *Does Stretching Improve Performance?* *Clin J Sport Med* 2004; 14:267-273
6. Suchomel, T.J., Nimphius, S., Bellon, C.R., and M.H. Stone. *The Importance of Muscular Strength: Training Considerations*. *Sports Med* 48(4), p.765-785. 2018
7. Hackett, D., et al. *Olympic weightlifting training improves vertical jump height in sportspeople: a systematic review with meta-analysis*. *Br J Sports Med*. 2016;50:865-872.
8. Petrakos, G., Morin, J.B., and B. Egan. *Resisted Sled Sprint Training to Improve Sprint Performance: A Systematic Review*.
9. Caterisano, A., et al. *CSCCa and NSCA Joint Consensus Guidelines for Transition Periods: Safe Return to Training Following Inactivity*. *Strength and Conditioning Journal*. 41(3). 2019
10. Denadai, B.S., et al. *Explosive Training and Heavy Weight Training are Effective for Improving Running Economy in Endurance Athletes: A Systematic Review and Meta Analysis*. *Sports Med*. 2017. 47:545-554
11. Turner, E., Munro, A.G., and P. Comfort. *Female Soccer: Part 1 - A Needs Analysis*. *Strength and Conditioning Journal*. 35(1) p.51-57. 2013.
12. Afonso, J. Nikolaidis, P.T., Sousa, P., and I. Mequita. *Is Empirical Research on Periodization Trustworthy? A Comprehensive Review of Conceptual and Methodological Issues*. *J. Sport Sci and Med* (2017) 16, 27-34.
13. Fragile, M.S., et al. *Resistance Training for Older Adults: Position Statement From the National Strength and Conditioning Association*. *J Strength Cond Res* XX(X). 2019
14. Lloyd, R.S., et al. *National Strength and Conditioning Association Position Statement on Long-Term Athletic Development*. *J Strength Cond Res* 30(6): 1491-1509. 2016
15. Dupuy, O., et al. *An Evidence-Based Approach for Choosing Post-exercise Recovery Techniques to Reduce Markers of Muscle Damage, Soreness, Fatigue, and Inflammation: A Systematic Review with Meta-Analysis* . *Front. Physiol*. 9:403. 2018
16. Moran, J., et al. *A Meta-Analysis of Resistance Training in Female Youth: Its Effect on Muscular Strength, and Shortcomings in the Literature*. *Sports Med* (2018) 48:1661-1671

COURSE FORMAT: Students access and complete course assignments through the APK6176 Canvas page. Course topics are organized into weekly learning modules. Each module includes 4 assignments corresponding with the module's learning materials (i.e. textbook reading, canvas readings, and associated lecture videos). A midterm exam and final exam are included in addition to the 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 schedule. Each Monday, the following week's assignments will become available on Canvas. Students may work at their own pace and most module assignments, with the exception of the weekly program design assignments, are due by 11:59pm on Sunday, April 25, 2021.

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

- Identify the biomechanical factors that influence resistance training performance
- Describe the basic physiology of the skeletal, neuromuscular, and cardiovascular systems as they pertain to an athlete engaged in a strength and conditioning program
- Predict the expected physiological adaptations of anaerobic and aerobic training programs.
- Conduct a needs analysis of a sport and an athlete within the sport
- Create a periodized annual strength and conditioning program integrating training modalities relevant to a chosen sport
- Administer appropriate assessments of athletic performance and interpret test results.
- Prescribe exercise training sessions with the intention of improving athletic performance in the areas of strength, power, speed, agility, aerobic capacity, anaerobic capacity, hypertrophy, and flexibility
- Adjust exercise prescriptions to meet the unique needs of youth and masters athletes
- Recommend evidence-based post-training recovery strategies to athletes.
- Identify facility administration safety considerations to limit liability risk
- Sit for the NSCA CSCS exam if desired.

COURSE AND UNIVERSITY POLICIES:

ATTENDANCE POLICY:

Active participation in the course is mandatory. Students are permitted unlimited attempts on module assignments so that they may review any missed questions or prepare for exams. Therefore, module assignments are effectively participation assignments.

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 based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu> or directly in CANVAS. 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.

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	Points Per Component	Weighted % of Total Grade
Textbook Reading Questions	90 points	5%
Canvas Reading Questions	60 points	5%
Research Article Questions	150 points	5%
Yellowdig Participation	100 points	5%
Article Synopses (x5)	50 points	5%
Program Design Assignments	200 points	15%
Midterm Exam	50 points	25%
Cumulative Final Exam	100 points	35%

Textbook Reading Questions - A total of 9 out of the 13 chapters in the required text are assigned within 9 of the 15 weekly learning modules. 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.

Canvas Reading Questions - Six of the 15 learning modules contain reading material written by the instructor providing additional scientific, program design, and exercise technique principles necessary to prepare for the NSCA Certified Strength and Conditioning Specialist exam. An assignment consisting of 10 objective questions pertaining to the corresponding Canvas reading 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 strength and conditioning decision making processes.

Program Design Assignments – Each learning module includes a program design assignment asking students to record the pertinent exercise prescription information from one representative training session according to instructions provided on Canvas. Students are provided with an excel document containing 15 tabs, one for each week of the course, where they will record the exercise prescription information. Instructions for what information to include on the spreadsheet is provided within each learning module's page on Canvas. Students will perform a Peer Review on the program submitted by one of their classmates each week. A rubric for conducting the peer review is provided each week. Students receive a grade of "complete" for the weekly program design assignments when they have submitted their spreadsheet and completed the peer review. Spreadsheets are due each Sunday by 11:59pm and all peer reviews are due by Sunday, 4/25, at 11:59pm. You will be given a grade of "incomplete" on Canvas until the Peer Review is finished, at which point the grade will be changed to "complete".

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 7 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 students in the online sections will be required to utilize the Honorlock proctoring service when completing the exam. Residential students will complete the exam in the classroom on the date designated in the course schedule. Online 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 students in the online sections will be required to utilize the Honorlock proctoring service when completing the exam. Residential students will complete the exam in the classroom on the date designated in the course schedule. Online students will complete the exam within the 24 hours of the date designated on the course schedule.

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+	86.5 - 89.49%	3.33
B	79.5 - 86.49%	3.0
C+	76.5 - 79.49%	2.33
C	69.5 - 76.49%	2.0
D+	66.5 - 69.49%	1.33
D	59.5 - 66.49%	1.0
E	0-59.49%	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.

GRADING SCALE: All course assignments are administered and graded within the APK6176 Canvas course page, so students will have access to all grades as they submit assignments. Grades of "complete" will be given to the 5 article synopses. The grade for these assignments will be posted within 1 week of students posting the synopsis. 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.

WEEKLY COURSE SCHEDULE:

Week	Dates	Topic	Chapter
1	(1/11 - 1/15)	Kinematic Variables Lab – Upper Extremity Resistance Exercises	1
2	(1/18 - 1/22)	Kinetics Variables Lab – Lower Extremity Resistance Exercises	2
3	(1/25 - 1/29)	Structure/Function of Muscle and Tendon Lab – USAW Olympic Weightlifting Progressions	3
4	(2/1 - 2/5)	Warm-Up Methods Lab – Dynamic Warm Up	8
5	(2/8 - 2/12)	Training Methods to Develop Flexibility Lab – PNF Stretching Technique	7
6	(2/15 - 2/19)	Muscular Strength and Power Lab – Alternative Resistance Training Implements	5
7	(2/22 - 2/26)	Training Methods to Develop Strength/Power Lab – Plyometric Drills	6
8	(3/1 - 3/5)	Sprint Running Lab - Sprint Technique Drills Midterm Exam (Modules 1 - 7)	13
9	(3/8 - 3/12)	Bioenergetics Lab – COD and Agility Drills	4
10	(3/15 - 3/19)	Training Methods to Develop Aerobic Power Lab – Aerobic Training Modalities	
11	(3/22 - 3/26)	NSCA Needs Analysis Guidelines Lab – NSCA Assessments Part 1	
12	(3/29 - 4/2)	Periodization Lab – NSCA Assessments Part 2	
13	(4/5 - 4/9)	Age and Gender Considerations Lab - Core Training Exercises	
14	(4/12 - 4/16)	Recovery Modalities Lab – Intro to Corrective Exercise	
15	(4/19 - 4/21)	Facility Administration	

Final Exam Available for 24-hours beginning 12AM on 4/29/20 for students in online sections. Students in the residential section of the course will complete the exam on 4/29/2021 from 10am - 12pm.

SUCCESS AND STUDY TIPS:

- Utilize the module assignments as study tools. You may complete the chapter reading 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, canvas readings, 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.