George Mason University
College of Education and Human Development
School of Kinesiology

EFHP 640.DL1 – Principles of Strength and Conditioning
3 Credits, Fall 2020
Asynchronous Online

Faculty

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Prerequisites/Corequisites

Graduate standing or permission of instructor.

University Catalog Course Description

Analyzes exercise techniques, training program designs, organization and administration, and testing and evaluation using scientific principles of strength and conditioning.

Course Overview

Emphasis will be placed upon assessment, description, and analyses of movement and designing training programs to enhance performance and prevent injury using research-based scientific principles of strength and conditioning. While this course will assist those, who desire to challenge certification examinations including, but not limited to: the American College of Sports Medicine (ACSM)'s – Certified Personal Trainer (CPT), the National Strength and Conditioning Association's (NSCA) Certified Strength and Conditioning Specialist (CSCS), or the American Council on Exercise (ACE)'s Personal Trainer Certification (PTC) examinations, it is NOT designed as an exam preparation course.

Course Delivery Method

This course will be delivered online (100%) using asynchronous format via the Blackboard learning management system (LMS) housed in the MyMason portal. Log into the Blackboard course site using your Mason email (everything before @masonlive.gmu.edu) and password.

Under no circumstances, may candidates/students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.

Technical Requirements

To participate in this course, students will need to satisfy the following technical requirements:

- High-speed Internet access with standard up-to-date browsers. To get a list of Blackboard's supported browsers click here.
  To get a list of supported operation systems on different devices click here.
- Students must maintain consistent and reliable access to their GMU email and Blackboard, as these are the official methods of communication for this course.
- Students may be asked to create logins and passwords on supplemental websites and/or to download trial software to their computer or tablet as part of course requirements.
- The following software plug-ins for PCs and Macs, respectively, are available for free download:
  - Respondus Lockdown Browser and Monitor

- Adobe Acrobat Reader
- Windows Media Player
- Apple Quick Time Player

Expectations

- Course Week:
  Asynchronous courses do not have a "fixed" meeting day. However, the modules and assignments for this course are set to start on MONDAY and finish on FRIDAY.
- Log-in Frequency:
  Students should actively check the course Blackboard site and their Mason email for communications from the instructor, class discussions, and/or access to course materials on a daily basis.
- Participation:
  Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.
- Technical Competence:
  Students are expected to demonstrate competence in the use of course technology. Students who are struggling with technical components of the course should seek assistance from Mason Information Technology Services: https://its.gmu.edu/service/its-support-center/.
- Technical Issues:
  Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.
- Workload:
  Please be aware that this course is **not** self-paced. Students are expected to meet *specific deadlines* and *due dates* listed in the **Class Schedule** section of this syllabus. It is the student's responsibility to keep track of the course schedule of topics, readings, activities and assignments due.
  Technology Services: https://its.gmu.edu/service/its-support-center/.
- Instructor Support:
  Students may schedule a one-on-one meeting to discuss course requirements, content, or other course-related issues. Please refer to information provided in the syllabus in order to schedule a time to meet with the instructor, whether via telephone, web conference, or face to face. Students should email the instructor to schedule a one-on-one session.
- Netiquette:
  The course environment is a collaborative space. Experience shows that even an innocent remark typed in the online environment can be misconstrued. Students should re-read their responses carefully before posting them, so as others do not consider them as personal offenses. *Be positive in your approach with others and diplomatic in selecting your words.* Remember that you are not competing with classmates but sharing information and learning from others. All faculty are similarly expected to be respectful in all communications.
- Accommodations:
  Online learners who require effective accommodations to ensure accessibility must be registered with George Mason University Disability Services (https://ds.gmu.edu/) and provide notification of such to the course instructor.

Learner Outcomes or Objectives

This course is designed to enable students to do the following:

1. Describe muscle, nerve anatomy, bone, and connective tissue anatomy and physiology and their adaptations to exercise training.
2. Explain the biomechanics of exercise training and how it applies to exercise prescription.
3. Analyze responses of several body systems and their responses to exercise.
4. Discuss the adaptations that occur during both aerobic and anaerobic exercise.
5. Discuss psychology of exercising individuals and their performance considering nutrition, performance

enhancing substances, and the effect of age and sex related differences.
6. Evaluate exercise testing and administration techniques.
7. Interpret baseline scores and norms associated with exercise tests.
8. Assess aerobic exercise, anaerobic exercises, plyometrics, and speed and agility training techniques.
9. Design training programs that includes strength and conditioning principles including warm-ups and cool-down, periodization, exercise testing, conditioning, plyometrics, and flexibility.
10. Discuss strength and conditioning facility layouts and policies and procedures, as well as discuss risk management.

Required Text

Haff, G. Gregory & Triplett, N. Travis (ed.). Essentials of Strength Training and Conditioning (4th edition). Human Kinetics, Champaign, 2016. ISBN: 978-1-4925-0162-6

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor. Assignments submitted within Blackboard will receive **half** credit for up to 24-hours after the due date and **no** credit thereafter.

Assignments and Examinations

Article Discussion Boards (240 points):

- Article Lead Summary (60 points)
  Each student will be assigned one article that they will be responsible for reading and providing a *thorough* summary to the rest of the class. The post will be due on ***Wednesday @11:59pm***. Posts should be at least 450 words in length. By the ***Sunday @11:59*** pm following the post, the author will research and respond to each student's question in order to finalize the discussion.
- Article Discussion Forum Responses (9 @ 20 points each; 180 points)
  There are 9 discussion forums; students must read ALL posts each week and kindly add to the discussion with additional information, a question, or an interesting point about what was learned. The response is due by ***Friday @11:59pm*** and should be at least 150 words in length.

Laboratory Sessions (160 points):

There are 4 lab sessions during the semester relative to the course's practical applications. Each lab has a participation assignment that project groups will work on together. On Monday, following the week of the lab, assignments will be graded and required office hour sessions will be held with each group to discuss things related to the previous week's lab and provide an opportunity for further discussion, questions and feedback on assignments. There must be **AT LEAST 1** member of each group in attendance, but it is highly recommended everyone attends as all are responsible for understanding feedback given and questions answered in these sessions. **Synchronous sessions will occur on 9/14, 10/5, 10/26, 11/16.**

- Evaluation of the Sport (80 points)
  Each group will work to complete a comprehensive need's analysis of their assigned sport that will serve as the need's analysis for the final macrocycle project. There will be 4 components to complete the need's analysis. Part 1 of each lab week and will be due by ***Wednesday @ 11:59pm*** of the respective week.
- Case Study Module (80 points)
  Part 2 is a case study module that requires practical application of learned concepts and knowledge. Each module begins with a message from your S & C Director followed by assigned duties and a case study to follow through the semester. A completed module and all assignments must be submitted by ***Friday @ 11:59pm*** of the respective week.

Exams (2 @ 200 points each; 400 points total):

Exams are non-cumulative and cover information from lectures, assigned readings, laboratory assignments, and videos. Exams are timed (75 minutes), multiple choice and will be open for a 24-hour window. Once you complete a question, you will not be able to return to it. You will be required to install and utilize the Respondus LockDown Browser and Monitor during all exams. EXAMS WILL BE GRADED FOR HALF-

CREDIT if an ID is not provided and/or a thorough environment scan is not completed. Further, no one is permitted in the area when you are taking the exam.

Final Macrocycle Project (200 points):

This group project will take the final needs analysis and continue to construct a full comprehensive periodized 16-week macrocycle with a rationalized program design. Groups will be formed the first week of class and built as a team/group in small groups throughout the semester

Course Performance Evaluation Weighting

Percentage of Grade	*REQUIREMENTS*	Total points
24%	**Article Discussion Forum**	
	Article Lead Summary	60
	Article Discussion Posts (20 points x 9 replies)	180
16%	**Laboratory Sessions**	
	Evaluation of the Sport (20 points x 4 lab sessions)	80
	Case Study Module (20 points x 4 lab sessions)	80
40%	**Written Exams**	
	Exam 1	200
	Exam 2	200
20%	**Final Macrocycle Project**	200
100%	**TOTAL**	**1000**

Course Grading Scale

The student's final letter grade will be earned based on the following scale:

Grade	Percentage	Points
A	94 – 100%	940-1000
A-	90 – 93%	900-939
B+	88 – 89%	880-899
B	84 – 87%	840-879
B-	80 – 83%	800-839
C	70 – 79%	700-799
F	0 – 69%	0-699

Notes:

Graduate students must maintain a 3.00 average in their graduate degree program.

Faculty reserves the right to alter the schedule as necessary, with notification to students.

All assignments must be submitted on Blackboard by 11:59 pm on the day they are due.

Final Grades:

Grades are final following 24 hours after posting date.

Professional Dispositions

See https://cehd.gmu.edu/students/polices-procedures/

Academic Load

Although many students must work to meet living expenses, employment and personal responsibilities are not acceptable reasons for late arrivals, missed classes, or incomplete assignments. Employment must not

take priority over academic responsibilities. For additional information on this subject, please see the Academic Catalog: http://catalog.gmu.edu/content.php?catoid=5&navoid=104#Registration_attendance Students failing to observe these guidelines should expect no special consideration for academic problems arising from the pressures of employment.

Honor Code
Students are held to the standards of the George Mason University Honor Code (see https://catalog.gmu.edu/policies/honor-code-system/). Violations, including cheating and plagiarism, will be reported to the Honor Committee. Student assignments may be put through plagiarism detecting software.

Written Assignments
- All assignments must be typed in Microsoft Word, and formatted as follows (*unless otherwise specified*): double spaced, 12-point Times New Roman font, 1-inch margins, your name and title in the running header at top left had corner, continuous line numbers on left margin, and page numbers centered in footer. Failure to comply with any or all parts of this format will result in an unacceptable assignment, which corresponds to zero (0) points.
- Pay close attention to spelling and grammar as these will count towards your grade. American Medical Association Manual (AMA) of Style (10th edition) format must be used for all written work in this class (e.g., in referencing, creation of tables, and formatting headers for paper sections).

E-mail Correspondence
Messages must originate from a GMU address. Please address the subject line for all email pertaining to this course as: *EFHP 640: Last Name – purpose of email.*

Week	Topic	Instructions & Assignments
1	**Neuromuscular System**	Module 1 – Chapter 1 slides and HO1
8/24	Article 1a	Silva, L. M., Neiva, H. P., Marques, M. C., Izquierdo, M., & Marinho, D. A. (2018). Effects of warm-up, post-warm-up, and re-warm-up strategies on explosive efforts in team sports: A systematic review. *Sports Medicine*, *48*(10), 2285-2299.
	Article 1b	Van Hooren, B., & Peake, J. M. (2018). Do we need a cool-down after exercise? A narrative review of the psychophysiological effects and the effects on performance, injuries and the long-term adaptive response. *Sports Medicine*, *48*(7), 1575-1595.
2	**Biomechanics**	Module 2 – Chapter 2 slides and HO2
8/31	Article 2a	Turner, A. N., Comfort, P., McMahon, J., Bishop, C., Chavda, S., Read, P., ... & Lake, J. (2020). Developing Powerful Athletes, Part 1: Mechanical Underpinnings. *Strength & Conditioning Journal*, *42*(3), 30-39.
	Article 2b	Myer, G. D., Kushner, A. M., Brent, J. L., Schoenfeld, B. J., Hugentobler, J., Lloyd, R. S., ... & McGill, S. M. (2014). The back squat: A proposed assessment of functional deficits and technical factors that limit performance. *Strength and Conditioning Journal*, *36*(6), 4-27.
3	*Labor Day*	*University Closed 09.07.2020*
9/7	**Bioenergetics**	Module 3 – Chapter 3 slides and HO3
	Lab 1	*Evaluation of Sport Part I: Movement Analysis* Warm-up and Cool Down Protocol Chapter 14

4 9/14	**Endocrine Responses**	Module 4 – Chapter 4 slides and HO4
	Article 3a	Kraemer, WJ and Ratamess, NA (2005) Hormonal responses and adaptations to resistance exercise and training. *Sports Medicine,* 35(4), 339-361.
	Article 3b	Wilk, M, Tufano, JJ, and Zajac, A (2020) The influence of movement tempo on acute neuromuscular, hormonal, and mechanical responses to resistance exercise—A mini review. *Journal of Strength & Conditioning Research*, *34*(8), 2369-2383.
5 9/21	**Anaerobic Training Adaptations**	Module 5 – Chapter 5 slides and HO5
	Article 4a	Suchomel, T. J., Nimphius, S., Bellon, C. R., & Stone, M. H. (2018). The importance of muscular strength: training considerations. *Sports Medicine*, *48*(4), 765-785.
	Article 4b	Schoenfeld, BJ. The mechanisms of muscle hypertrophy and their application to resistance training. *Journal of Strength & Conditioning Research*, 24(10), 2857–2872, 2010.
6 9/28	Exam 1 Study Guide	Module Exam 1 – Complete the study guide
	Lab 2	*Evaluation of Sport Part 2: Physiological Analysis* Core Lifts Chapter 15 pp. 371-372, 380-383, 389 Chapter 16 pp. 409-419.
7 10/5	**Exam #1**	Required: Webcam and Respondus Lockdown Browser Exam #1 open for 24 hours on 10/8
8 10/12	*Fall Break*	*University classes do not meet 10.12.2020*
	Age- and Sex-related Differences	Module 6 – Chapter 7 slides and HO6
	Article 5a	Roberts, B. M., Nuckols, G., & Krieger, J. W. (2020). Sex differences in resistance training: A systematic review and meta-analysis. *Journal of Strength & Conditioning Research*, *34*(5), 1448-1460.
	Article 5b	Lloyd, RS, Cronin, JB, Faigenbaum, AD, Haff, GG, Howard, R, Kraemer, WJ, Micheli, LJ, Myer, GD, and Oliver, JL. (2016) National Strength and Conditioning Association position statement on long-term athletic development. *Journal of Strength & Conditioning Research*, 30(6), 1491–1509.
9 10/19	**Performance Testing**	Module 7 - Chapters 12,13 slides and HO7
	Article 6a	Soriano, M. A., Suchomel, T. J., & Comfort, P. (2019). Weightlifting overhead pressing derivatives: a review of the literature. *Sports Medicine*, *49*(6), 867-885.
	Article 6b	McMaster, D.T., Gill, N., Cronin, J., & McGuigan, M. (2014) A brief review of strength and ballistic assessment methodologies in sport. *Sports Medicine,* 44, 603-623.
	Lab 3	*Evaluation of Sport Part 3: Assessment* Performance Assessment Chapter 13 pp. 267-271, 280-282.
10	**Resistance Training**	Module 8 - Chapters 15-17 slides and HO8

10/26	Article 7a	Kraemer, W. J., & Ratamess, N.A. (2004). Fundamentals of resistance training: Progression and exercise prescription. *Medicine and Science in Sports and Exercise*, 36(4), 674–688.
	Article 7b	Simão, R., de Salles, B. F., Figueiredo, T., Dias, I., & Willardson, J. M. (2012). Exercise order in resistance training. *Sports Medicine (2012)*, *42*(3), 251–265. https://doi.org/10.2165/11597240-000000000-00000
11 11/2	**Plyometrics**	Module 9 - Chapter 18 slides and HO9
	Article 8a	Haugen, T., McGhie, D., & Ettema, G. (2019). Sprint running: From fundamental mechanics to practice—A review. *European Journal of Applied Physiology*, *119*(6), 1273-1287.
	Article 8b	Slimani, M., Chamari, K., Miarka, B., Del Vecchio, F. B., & Chéour, F. (2016). Effects of plyometric training on physical fitness in team sport athletes: a systematic review. *Journal of Human Kinetics*, *53*(1), 231-247.
12 11/9	**Speed and Agility**	Module 10 - Chapter 19 slides and HO10
	Lab 4	*Evaluation of Sport Part 4: Complete Needs Analysis* Speed and Agility
13 11/16	**Periodization**	Module 11 - Chapter 21 slides and HO11
	Article 9a	Turner, A. N., Comfort, P., McMahon, J., Bishop, C., Chavda, S., Read, P., Mundy, P. & Lake, J. (2020). Developing Powerful Athletes Part 2: Practical Applications. *Strength & Conditioning Journal*. doi: 10.1519/SSC.0000000000000544
	Article 9b	Cunanan, A. J., DeWeese, B. H., Wagle, J. P., Carroll, K. M., Sausaman, R., Hornsby, W. G., ... & Stone, M. H. (2018). The general adaptation syndrome: a foundation for the concept of periodization. *Sports Medicine*, *48*(4), 787-797.
14 11/23	*Thanksgiving Break*	*University closed 11.25.2020 – 11.29.2020*
15 11/30	Macrocycle Project Presentations	**Business casual dress is required when presenting:** http://www.entrepreneur.com/article/249188
16 12/7	**Exam #2**	Required: Webcam and Respondus Lockdown Browser Exam #2 open for 24 hours on 12/10

Core Values Commitment

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: http://cehd.gmu.edu/values/.

GMU Policies and Resources for Students

COVID Syllabus Addendum Fall 2020

- Students are expected to read and familiarize themselves with the COVID-19 syllabus addendum provided by the College of Education and Human Development. This is located in Blackboard under the START HERE Course Module.

Policies

- Students must adhere to the guidelines of the Mason Honor Code (see https://catalog.gmu.edu/policies/honor-code-system/)

- Students must follow the university policy for Responsible Use of Computing (see https://universitypolicy.gmu.edu/policies/responsible-use-of-computing/).
- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students **solely** through their Mason email account.
- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see http://ds.gmu.edu/).
- Students must follow the university policy stating that all sound emitting devices shall be silenced during class unless otherwise authorized by the instructor.

Campus Resources

- Support for submission of assignments to Tk20 should be directed to tk20help@gmu.edu or https://cehd.gmu.edu/aero/tk20. Questions or concerns regarding use of Blackboard should be directed to https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/.
- For information on student support resources on campus, see https://ctfe.gmu.edu/teaching/student-support-resources-on-campus

Notice of mandatory reporting of sexual assault, interpersonal violence, and stalking:
As a faculty member, I am designated as a "Responsible Employee," and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason's Title IX Coordinator per University Policy 1202. If you wish to speak with someone confidentially, please contact one of Mason's confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-380-1434 or Counseling and Psychological Services (CAPS) at 703-993-2380. You may also seek assistance from Mason's Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

For additional information on the College of Education and Human Development, please visit our website https://cehd.gmu.edu/students/