GEORGE MASON UNIVERSITY
College of Education and Human Development
Division of Health and Human Performance

Fall 2015 - KINE 360-001: Strength Training: Concepts & Applications (3)

DAY/TIME:	MW 10:30 – 11:45 a.m.	LOCATION:	Bull Run Hall 249
PROFESSOR:	Jeff Li, MS, CSCS, PN	EMAIL ADDRESS:	JLi25@gmu.edu
OFFICE HOURS:	By Appointment Only		

PREREQUISITES/COREQUISITES
BIOL 124, BIOL125, ATEP 300, KINE 310

COURSE DESCRIPTION
Provides students with an opportunity to develop an in-depth understanding of the principles of strength training and conditioning, including: anatomical and physiological considerations, lifting techniques, equipment selection, program development and evaluation, and weightlifting safety; thus enabling them to teach and train clients.

COURSE OBJECTIVES
Upon completion of KINE 360 students should be able to:
1. Demonstrate an understanding of the physiological adaptations to resistance training.
2. Explain the role of bioenergetics to metabolic specificity of training.
3. Evaluate and design programs for developing strength, power, speed, and conditioning.
4. Analyze the value of Olympic lifting to athletic performance.
5. Examine the difference between strength training and power training.

COURSE OVERVIEW
Emphasis will be placed upon assessment, description, and analysis of sport movement and designing training programs to enhance performance variables. While this course will assist those who desire to sit for the National Strength and Conditioning Association's (NSCA) Certified Strength and Conditioning Specialist (CSCS) Exam, it is NOT a preparation course for the NSCA-CSCS exam. Material for the course will be drawn from the required textbook and assigned readings. Class lectures will be presented in PowerPoint with handouts posted on BLACKBOARD in advance of class meetings.

ACCREDITATION STANDARDS
This course meets the Commission on Accreditation of Allied Health Education Programs (CAAHEP) requirements and covers the following American College of Sports Medicine's Knowledge-Skills-Abilities (KSA's):

KSA	Description	Lecture, Lab, or both
	GENERAL POPULATION/CORE: EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE	
1.1.6	Knowledge of the curvatures of the spine including lordosis, scoliosis, and kyphosis.	Lecture
1.1.7	Knowledge of the stretch reflex and how it relates to flexibility.	Lecture
1.1.10	Knowledge of the role of aerobic and anaerobic energy systems in the performance of various physical activities.	Lecture
1.1.14	Knowledge of the anatomical and physiological adaptations associated with strength training.	Lecture
1.1.15	Knowledge of the physiological principles related to warm-up and cool-down.	Lecture
1.1.20	Knowledge of the characteristics of fast and slow twitch muscle fibers.	Lecture

1.1.21	Knowledge of the sliding filament theory of muscle contraction.	Lecture
1.1.22	Knowledge of twitch, summation, and tetanus with respect to muscle contraction.	Lecture
1.1.23	Knowledge of the principles involved in promoting gains in muscular strength and endurance.	Lecture
1.1.24	Knowledge of muscle fatigue as it relates to mode, intensity, duration, and the accumulative effects of exercise.	Lecture
1.1.32	Knowledge of the concept of detraining or reversibility of conditioning and its implications in exercise programs.	Lecture
1.1.33	Knowledge of the physical and psychological signs of overreaching/overtraining and to provide recommendations for these problems.	Lecture
1.1.35	Knowledge of the effect of the aging process on the musculoskeletal and cardiovascular structure and function at rest, during exercise, and during recovery.	Lecture
1.1.36	Knowledge of the following terms: progressive resistance, isotonic/isometric, concentric, eccentric, atrophy, hyperplasia, hypertrophy, sets, repetitions, plyometrics, Valsalva maneuver.	Lecture
	GENERAL POPULATION/CORE EXERCISE PRESCRIPTION AND PROGRAMMING	
1.7.1	Knowledge of the relationship between the number of repetitions, intensity, number of sets, and rest with regard to strength training.	Lecture
1.7.3	Knowledge of the benefits and precautions associated with exercise training in across the lifespan (from youth to the elderly).	Lecture
1.7.11	Knowledge of and the ability to describe exercises designed to enhance muscular strength and/or endurance of specific major muscle groups.	Both
1.7.13	Knowledge of the various types of interval, continuous, and circuit training programs.	Lecture
1.7.29	Ability to identify proper and improper technique in the use of resistive equipment such as stability balls, weights, bands, resistance bars, and water exercise equipment.	Both
1.7.31	Ability to teach a progression of exercises for all major muscle groups to improve muscular strength and endurance.	Both
1.7.42	Ability to design resistive exercise programs to increase or maintain muscular strength and/or endurance.	Lecture
1.7.44	Ability to design training programs using interval, continuous, and circuit training programs.	Lecture
1.7.45	Ability to describe the advantages and disadvantages of various commercial exercise equipment in developing cardiorespiratory fitness, muscular strength, and muscular endurance.	Lecture
	GENERAL POPULATION/CORE: SAFETY, INJURY PREVENTION, AND EMERGENCY PROCEDURES	
1.10.5	Knowledge of the physical and physiological signs and symptoms of overtraining and the ability to modify a program to accommodate this condition.	Lecture

NATURE OF COURSE DELIVERY

This course will be delivered in a face-to-face environment, and will consist of lecture and laboratory instruction.

REQUIRED TEXTBOOK

Baechle, Thomas R. & Roger Earle (ed.). *Essentials of Strength Training and Conditioning (3rd edition)*. Human Kinetics, Champaign, 2008. ISBN-13: 978-0-7360-5803-2

EVALUATION

A. Written Examinations		
Unit #1 Exam (Midterm Exam)	30%	(Objectives 1, 2)
Unit #2 Exam (Final Exam)	30%	(Objectives 3, 4, 5)
B. Unannounced Quizzes	20%	(Objectives 1 – 5)
C. Laboratory/Discussion Sessions	20%	(Objectives 1 – 5)

FINAL EXAM:
10:30 – 1:15 pm, Wednesday, December 16, 2015. Please remember to bring a Scantron sheet.

Grading Scale
This course will be graded on a point system, with a total of 100 possible points.

A = 94 – 100	B+ = 88 – 89	C+ = 78 – 79	D = 60 – 69
A- = 90 – 93	B = 84 – 87	C = 74 – 77	F = 0 – 59
	B- = 80 – 83	C- = 70 – 73	

Final Grades:
Grades are final following 24 hours after posting date.

PROFESSIONAL BEHAVIOR:
Kinesiology students are expected to exhibit professional behaviors and dispositions at all times. Depending upon the setting professionalism may appear different, but typically consists of similar components. For Kinesiology students in a classroom setting, professionalism generally comprises the following components:

- ***Attendance*** – Students are expected to attend class, be on time, and pay attention. A grade of zero will be assigned to any missed assignment without prior permission from the instructor. Late assignments will receive a letter grade deduction for each 24-hour period past the deadline. If you cannot attend a class for a legitimate reason please notify the instructor in advance via email. If you have to unexpectedly miss a class due to something out of your control, contact the instructor within 24 hours to notify them of what happened and to see if there is anything you need to do to make up your absence. Students will not be allowed to make up quizzes that are missed due to unexcused absences, and students who arrive more than 5 minutes late on quiz days will forfeit the chance to take the quiz.

- ***Communication*** – When communicating with the instructor and classmates, either face-to-face or via email (see below), students should address the other person with respect, use appropriate language, and maintain a pleasant demeanor. Students who fail to do may be asked to leave class, and will receive a grade of zero for all assignments or activities missed during that class period.

  E-mail Correspondence - Messages must be in a professional format and originate from a Mason address:

  Dear Professor Li *(Beginning salutation),*
  I have a question regarding one of the assignments. *(Text body)*
  Respectfully, *(Ending Salutation)*
  Sam Student *(Your name)*

- ***Classroom Demeanor and Participation*** – Students are expected to attend all class sections, participate in class discussions and activities, complete in-class exercises, and fulfill all assignments. Demonstrate that you have an interest in the subject matter. Participation in lab activities is mandatory and will comprise the majority of the lab grade. Discussion days will reinforce comprehension of the subject matter and provide you with

opportunities to analyze and evaluate real-world scenarios with your new knowledge. Graded class activities that involve the application and synthesis of course materials (e.g. creating an exercise program) will be assigned during discussion days. Anyone exhibiting inappropriate behavior may be asked to leave (e.g. sleeping in class, texting, or using laptops/tablets for recreational use). University policy states that all sound emitting devices (e.g. cell phones) shall be turned off during class unless otherwise authorized.

- ***Responsibility/Accountability*** – Professionals take responsibility for their actions and are accountable. This can occur at multiple levels but generally consists of completing assignments on time, submitting work that is of the appropriate quality, honoring commitments and owning up to mistakes. Late assignments will receive a letter grade deduction for each 24-hour period past the deadline.

- ***Academic Honesty/Integrity*** – Kinesiology students are expected to be honest with the instructor, classmates and themselves. Professionals keep their word when committing to something and act in an ethical manner. Students are held to the standards of the George Mason University Honor Code. Students are expected to honestly represent their work. The possible situations when a student could violate these expectations range from incorrectly citing or failing to cite references/footnotes within papers and projects to cheating on an examination or assignment. Academic integrity is the responsibility a student assumes for honestly representing all academic work. This includes but is not limited to quizzes, examinations, projects, and other forms of oral and written endeavors. Students who are caught cheating on exams, quizzes, or assignments will receive a grade of zero and will be reported to the office of Academic Integrity.

- ***Self-Improvement/Self-awareness*** – One should be aware of their strengths/weaknesses and constantly seek to improve. Professionals regularly seek opportunities to increase their knowledge and improve their current skill set.

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.

Student Expectations

- Students must adhere to the guidelines of the George Mason University Honor Code [See http://oai.gmu.edu/the-mason-honor-code/].
- Accommodation Planning - Students with disabilities who seek accommodations in a course must be registered with the Office of Disability Services (ODS) and inform the instructor, in writing, at the beginning of the semester [See http://ods.gmu.edu]
- Students must follow the university policy for Responsible Use of Computing [See http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/].
- Students are responsible for the content of university communications sent to their George Mason University 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 must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.

Campus Resources

- The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See http://caps.gmu.edu/].
- The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing [See http://writingcenter.gmu.edu/].

- For additional information on the College of Education and Human Development, School of Recreation, Health, and Tourism, please visit our website [See http://rht.gmu.edu].

Tentative Course Schedule (Faculty reserves the right to alter the schedule as necessary)

8/31	Course Introduction	
9/2	Neuromuscular System	B&E: CH 1
9/7	**Labor Day**	**No Classes!**
9/9	**Lab 1**	**Dress appropriately and be prepared to participate**
9/14	Neuromuscular System	B&E: CH 1
9/16	Neuromuscular System/ Bioenergetics	B&E: CH 1 and CH 2
9/21	Bioenergetics	B&E: CH 2
9/23	Bioenergetics	B&E: CH 2
9/28	Endocrine Responses	B&E: CH 3
9/30	Anaerobic Training Adaptations	B&E: CH 5
10/5	Age and Gender Differences	B&E: CH 7
10/7	Biomechanics	B&E: CH 4
10/12	**Columbus Day, class meets tomorrow (T)**	**Class meets tomorrow!**
10/13	Biomechanics	B&E: CH 4
10/14	**Lab 2**	**Dress appropriately and be prepared to participate**
10/19	Review	Bring Questions!
10/21	**Midterm Exams**	**B&E: CH 1-5. Bring Scantron Sheet**
10/26	Testing	B&E: CH 11, 12
10/28	**Lab 3**	**Dress appropriately and be prepared to participate**
11/2	Resistance Training	B&E: CH 14, 15
11/4	Resistance Training	B&E: CH 14, 15
11/9	Resistance Training	B&E: CH 14, 15
11/11	**Discussion Day**	**Bring Topics and Questions!**
11/16	Plyometrics	B&E: CH 16
11/18	Speed Development	B&E: CH 17
11/23	**Lab 4**	**Dress appropriately and be prepared to participate**
11/25	**Thanksgiving Break**	**No Classes!**
11/30	Speed Development	B&E: CH 17
12/2	Periodization	B&E: CH 19
12/7	**Discussion Day**	**Bring Topics and Questions!**
12/9	Review	Bring Questions!
12/14	**Reading Day**	**No Classes; Study for Final Exam!**
12/16	**Final Exam**	**B&E: CH 7, 11-12, 14-17, 19. Bring Scantron Sheet**