GEORGE MASON UNIVERSITY
School of Recreation, Health, and Tourism

KINE 350-001: Exercise Prescription and Programming (3)
Summer 2016

DAY/TIME:	MTWR 1:30-3:35 pm	LOCATION:	130 Bull Run Hall
PROFESSOR:	Dr. Joel Martin	EMAIL ADDRESS:	jmarti38@gmu.edu
OFFICE LOCATION:	207 Bull Run Hall	PHONE NUMBER:	703-993-9257
OFFICE HOURS:	by appt	FAX NUMBER:	703-993-2025

PREREQUISITES
KINE 200, ATEP 300, KINE 310, KINE 370

COURSE CATALOG DESCRIPTION
This course provides study of the design and implementation of exercise programs for the general population.

COURSE OBJECTIVES
At the completion of this course students should be able to:

1. Implement the principles of specificity and progressive overload into exercise program design.
2. Apply the theories of behavior change and motivational strategies to exercise adherence.
3. Apply results of fitness assessments to create fitness programs.
4. Develop single session and long-term fitness training plans for apparently healthy, asymptomatic clients.

COURSE OVERVIEW
Students are held to the standards of the George Mason University Honor Code. This course will include both lecture and laboratory instruction. Students are expected to attend all class sections, actively participate in class discussions, complete in-class exercises, and fulfill all assignments. Assignments must be turned in at the beginning of class on the specified date due or **no credit will be given**. Since this course requires significant active participation, students must be dressed in appropriate fitness wear during some class sessions. Notification will be given when active dress is required. Many of the concepts covered in this course will prepare the student to take the American College of Sports Medicine (ACSM) Health Fitness Specialist (HFS) exam; however this is NOT a preparation course for the ACSM-HFS exam.

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	

1.1.11	Knowledge of the following cardiorespiratory terms: ischemia, angina pectoris, tachycardia, bradycardia, arrhythmia, myocardial infarction, claudication, dyspnea and hyperventilation.	Lecture
1.1.12	Ability to describe normal cardiorespiratory responses to static and dynamic exercise in terms of heart rate, stroke volume, cardiac output, blood pressure, and oxygen consumption.	Both
1.1.13	Knowledge of the heart rate, stroke volume, cardiac output, blood pressure, and oxygen consumption responses to exercise.	Both
1.1.18	Knowledge of the differences in cardiorespiratory response to acute graded exercise between conditioned and unconditioned individuals.	Lecture
1.1.28	Knowledge of and ability to describe the implications of ventilatory threshold (anaerobic threshold) as it relates to exercise training and cardiorespiratory assessment.	Both
1.1.31	Knowledge of how the principles of specificity and progressive overload relate to the components of exercise programming.	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
	GENERAL POPULATION/CORE: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING	
1.3.1	Knowledge of and ability to discuss the physiological basis of the major components of physical fitness: flexibility, cardiovascular fitness, muscular strength, muscular endurance, and body composition.	Lecture
1.3.2	Knowledge of the value of the health/medical history.	Lecture
1.3.3	Knowledge of the value of a medical clearance prior to exercise participation.	Lecture
1.3.4	Knowledge of and the ability to perform risk stratification and its implications towards medical clearance prior to administration of an exercise test or participation in an exercise program.	Lecture
1.3.5	Knowledge of relative and absolute contraindications to exercise testing or participation.	Lecture
1.3.6	Knowledge of the limitations of informed consent and medical clearance prior to exercise testing.	Lecture
1.3.10	Knowledge of calibration of a cycle ergometer and a motor-driven treadmill.	Lecture
1.3.11	Ability to locate the brachial artery and correctly place the cuff and stethoscope in position for blood pressure measurement.	Lab
1.3.20	Ability to analyze and interpret information obtained from the cardiorespiratory fitness test and the muscular strength and endurance, flexibility, and body composition assessments for apparently healthy individuals and those with controlled chronic disease.	Lecture
	GENERAL POPULATION/CORE EXERCISE PRESCRIPTION AND PROGRAMMING	
1.7.2	Knowledge of the benefits and precautions associated with exercise training in apparently healthy and controlled disease.	Lecture
1.7.10	Knowledge of the recommended intensity, duration, frequency, and type of physical activity necessary for development of cardiorespiratory fitness in an apparently healthy population.	Lecture

1.7.12	Knowledge of the principles of overload, specificity, and progression and how they relate to exercise programming.	Lecture
1.7.14	Knowledge of approximate METs for various sport, recreational, and work tasks.	Lecture
1.7.15	Knowledge of the components incorporated into an exercise session and the proper sequence (i.e., pre-exercise evaluation, warm-up, aerobic stimulus phase, cool-down, muscular strength and/or endurance, and flexibility).	Lecture
1.7.17	Knowledge of the importance of recording exercise sessions and performing periodic evaluations to assess changes in fitness status.	Lecture
1.7.18	Knowledge of the advantages and disadvantages of implementation of interval, continuous, and circuit training programs.	Lecture
1.7.24	Skill in the use of various methods for establishing and monitoring levels of exercise intensity, including heart rate, RPE, and oxygen cost.	Lecture
1.7.25	Ability to identify and apply methods used to monitor exercise intensity, including heart rate and rating of perceived exertion.	Lecture
1.7.27	Ability to differentiate between the amount of physical activity required for health benefits and/or for fitness development.	Lecture
1.7.28	Knowledge of and ability to determine target heart rates using two methods: percent of age-predicted maximum heart rate and heart rate reserve (Karvonen).	Lecture
1.7.30	Ability to identify proper and improper technique in the use of cardiovascular conditioning equipment (e.g., stairclimbers, stationary cycles, treadmills, elliptical trainers, rowing machines).	Lecture
1.7.33	Ability to design, implement, and evaluate individualized and group exercise programs based on health history and physical fitness assessments.	Lecture
1.7.35	Ability to apply energy cost, VO_2, METs, and target heart rates to an exercise prescription.	Lecture
1.7.36	Ability to convert between the U.S. and Metric systems for length/height (inches to centimeters), weight (pounds to kilograms) and speed (miles per hour to meters per minute).	Lecture
1.7.37	Ability to convert between absolute ($mL.min^{-1}$ or $L.min^{-1}$) and relative oxygen costs ($mL.kg^{-1}.min^{-1}$, and/or METs).	Lecture
1.7.38	Ability to determine the energy cost for given exercise intensities during horizontal and graded walking and running stepping exercise, cycle ergometry, arm ergometry and stepping.	Lecture
1.7.39	Ability to prescribe exercise intensity based on VO_2 data for different modes of exercise, including graded and horizontal running and walking, cycling, and stepping exercise.	Lecture
1.7.40	Ability to explain and implement exercise prescription guidelines for apparently healthy clients, increased risk clients, and clients with controlled disease.	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
1.7.46	Ability to modify exercise programs based on age, physical condition, and current health status.	Lecture
	CARDIOVASCULAR: PATHOPHYSIOLOGY AND RISK FACTORS	
2.2.1	Knowledge of cardiovascular risk factors or conditions that may require consultation with medical personnel before testing or training, including	Lecture

	inappropriate changes of resting or exercise heart rate and blood pressure, new onset discomfort in chest, neck, shoulder, or arm, changes in the pattern of discomfort during rest or exercise, fainting or dizzy spells, and claudication.	

E-mail Correspondence
Only messages that originate from a George Mason University email address will be accepted.

Technology Use During Class
As per GMU policy, all sound emitting technology is required to be turned off during the class meeting time. No sound emitting technology (e.g., cell phones, smart phones, iPads, Tablets, pagers, etc.) is allowed at any time during the class period. Students who are observed using any form of technology inappropriately (e.g., sending text messages from cell phones, visiting social networking sites from laptops, etc.) will be dismissed from class for the day, counted as an absence, and not permitted to make up missed assignments.

NATURE OF COURSE DELIVERY
This course will include lecture, online and laboratory instruction.

REQUIRED TEXTBOOK
Heyward, V.H. (2014). *Advanced fitness assessment and exercise prescription (7th edition)*. Champaign, IL: Human Kinetics. ISBN-13: 9781450466004.

OPTIONAL/SUGGESTED READING
Dwyer, G.B. (2013). *ACSM's Certification Review (4th edition)*. Philadelphia, PA: Lippincott Williams & Wilkins. ISBN-13: 9781609138544.

SUPPLEMENTARY MATERIALS
Supplementary materials will be used in class and posted on BlackBoard/MyMason Portal.

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

Requirement	Percentage
Exams (2) *Exams will be T/F, multiple choice and short answer. Each exam will cover approximate one third of the semester's material (Objectives 1,2,3,4)*	30%
Lab Activities and Reports (6) *Lab activities will provide students with hands on experience and application of material covered in class. Reports will be submitted approximately 1 week after each lab is performed. (Objective 3)*	20%
Homework (6) *Homework will expose students to research related to topics covered in class (Objectives 1,2,3,4)*	15%

Attendance, Participation & Professionalism *Attendance will be documented. Students not participating in class activities will be counted as absent (Objectives 1,2,3,4)*	5%
Quizzes (4) *Quizzes will be given unannounced at various times during the semester. Questions will be based on lecture content, book readings and articles posted on Blackboard (Objectives 1,2,3,4)*	10%
Client Consultation, Assessment and Exercise Prescription Project *Students will work with a client and provide a consultation, fitness assessment and design an exercise prescription appropriate for the client. (Objectives 1,2,3,4)*	20%

Grading Scale

A	= 93.5 – 100	B+	= 87.5 – 89.4	C+	= 77.5 – 79.4	D	= 59.5 – 69.4
A-	= 89.5 – 93.4	B	= 82.5 – 87.4	C	= 72.5 – 77.4	F	= 0 – 59.4
		B-	= 79.5 –82.4	C-	= 69.5 – 72.4		

Once your FINAL GRADE, at the end of the semester is posted on mymasonportal/blackboard, you will have 24 hours to inquire about it. After that period, your grade will be posted as final on Patriot Web.

Exams *(Course objectives 1, 2, 3 & 4)*
Questions will consist of multiple choice, true/false, short response and case study questions.
Examinations represent inquiries regarding student knowledge of fact regarding course content. Examinations demonstrate that the student can recall and apply facts related to exercise prescription and programming.

Lab Activities and Reports *(Course objectives 1, 2, 3 & 4)*
Laboratory activities provide students experiential learning opportunities. Students will work with a partner to complete the labs and be required to collect, analyze and interpret data. Each student will turn in their own lab report. Laboratory due dates are stated on the course schedule. Lab reports must be typed; however, calculations may be handwritten.

HW *(Course objectives 1 & 2)*
HW assignments will expose students to current research related to topics covered in lecture. Current exercise guidelines from organizations such as ACSM are based on evidence provided in research studies. HW assignments should be typed and handed in at the start of class on the specified due date.

Quizzes *(Course objectives 1, 2, & 3)*
Quizzes will be given unannounced at various times during the semester. Questions will be based on lecture content, book readings and articles posted on Blackboard.

Client Consultation, Assessment and Exercise Prescription Project *(Course objectives 1, 2, 3 & 4)*
The course will culminate with a project in which students are given an actual client to work with.

Each student will be provided a client by the course instructor. Students are required to meet with the client 3 times to provide a(n): initial consultation, fitness assessment, and deliver an exercise program. Prior to each meeting the student will need to meet with the course instructor to have their client meeting materials and activities approved. Students are not required to continue to interact with their client after the exercise program has been delivered. A project summary must be submitted on Blackboard at the end of the semester. Details regarding the project summary will be provided to students.

Participation & Professionalism *(Course objectives 1, 2, 3 & 4)*
Kinesiology students are expected to behave in a professional manner. Depending upon the setting professionalism may appear different, but typically consists of similar components. For undergraduate Kinesiology students in a classroom setting professionalism generally comprises the following components:

Attendance – Show up on time to class and pay attention. If you cannot attend a class for a legitimate reason please notify the instructor ahead of time. If you have to unexpectedly miss a class due to something out of your control, contact the instructor within 24 hours to notify them what happened and to see if there is anything you need to do to make up your absence.

Participation – Participate in class discussions and activities. Demonstrate that you have an interest in the subject matter.

Attendance and Participation Evaluation: Attendance will be documented for all classes.

Communication – When communicating with the instructor and classmates, either face-to-face or via the assigned George Mason University email address, students should address the other person appropriately, use appropriate language and maintain a pleasant demeanor.

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.

Honesty/Integrity – 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.

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

Communication, Responsibility/Accountability, Honesty/Integrity, and Self-Improvement/Self-awareness Evaluation: Violations will be documented and student will be notified. Each violation will result in the loss of 1 point from final grade

TENTATIVE COURSE SCHEDULE

Date	Topic	Readings/Assignment Due
June 27^{M}	Introduction / Preliminary Health Screening and Risk Classification / Physical Activity, Health and Chronic Disease / Exercise Program Adherence / Principles of Assessment and Prescription	Heyward Chapters 1 & 2; Preliminary Screening Materials on Blackboard
June 28^{T}	Flexibility Program Design / Movement Screen Overview / Flexibility & Movement Screen Lab – Common Flexibility Tests, FMS & Running Screen *Location: Freedom Center*	Heyward Chapters 3, 10 & 11; FMS Materials on Blackboard
June 29^{W}	Assessing Cardiorespiratory Fitness / Submaximal VO_2 Lab *Location: Freedom Center*	Heyward Chapter 4 / **HW 1 Due**
June 30TH	Basic Principles of Training Program Design / Designing ACSM Based Cardiorespiratory Exercise Programs / Measures of Intensity, Frequency, and Duration	
July 4^{M}	NO CLASS	
July 5^{T}	Metabolic Equations / Cardiorespiratory Workout & Program Design Lab Part 1 *Location: 130 Bull Run Hall*	**Flexibility & Movement Screen Lab Due**
July 6^{W}	Cardiorespiratory Workout & Program Design Lab Part 2 *Location: Freedom Center*	**HW 2 Due;** Heyward Chapter 5; Metabolic Equation Materials on Blackboard
July 7TH	Review for Exam 1 / **EXAM 1**	**HW 3 Due; Submaximal VO_2 Lab Due**
July 11^{M}	Go over Exam 1 / Assessing Muscular Fitness Lecture	**Cardiorespiratory Workout & Program Design Lab Due;** Heyward Chapter 6
July 12^{T}	Assessing Muscular Fitness Lab *Location: Freedom Center*	
July 13^{W}	Designing ACSM Guideline Based Resistance Training Programs / Resistance Training Workout & Program Design Lab – Part 1 *Location: 130 Bull Run Hall*	**HW 4 Due;** Heyward Chapter 7; ACSM Position Stand - Progression Models of Resistance Training for Healthy Adults
July 14TH	**Meet with client to perform initial consultation**	
July 18^{M}	Resistance Training Workout & Program Design Lab – Part 2 *Location: Freedom Center* Compatibility Between Aerobic and Resistance Exercise - Concurrent Training	**Assessing Muscular Fitness Lab Due;** Concurrent Training Articles on Blackboard

July 19^{T}	Assessing Body Composition / Designing Weight Management and Body Composition Programs / Review for Exam 2	Heyward Chapters 8 & 9; ACSM Position Stand on Appropriate Physical Activity Intervention Strategies for Weight Loss and Prevention of Weight Regain for Adults
July 20^{W}	**EXAM 2**	**HW 5 Due; Resistance Training Workout & Program Design Lab Due**
July 21Th	**Meet with client to perform fitness assessment**	
July 25^{M}	Go over Exam 2 / Corrective Exercise Overview – Common Movement Impairments & Corrective Exercise Techniques	Corrective Exercise Materials on Blackboard
July 26^{T}	HIIT Training and Weight Loss / Multi-modal Training and Workout Design / HIIT and Multi-modal Training Lab Part 1 *Location: 130 Bull Run Hall* HIIT and Multi-modal Training Lab Part 2 *Location: Freedom Center*	**HW 6 Due**; HIIT & Multi-modal Training Articles on Blackboard
July 27^{W}	ACSM EP-C Practice Test / HIIT and Multi-modal Training Lab Presentations / New Fitness Technology and Trends	**HIIT and Multi-modal Training Lab Due**; EP-C Manual; ACSM Article on Fitness Trends of 2016
July 28TH	**Meet with client to provide to explain exercise program**	**Client Project Due by 5 pm on Blackboard**

Note: **The instructor reserves the right to make changes to the course syllabus and/or schedule at any time. Students will always be informed of any changes made.**

Student Expectations

- Students must adhere to the guidelines of the George Mason University Honor Code [See http://oai.gmu.edu/honor-code/].
- Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their 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/responible-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].

PROFESSIONAL BEHAVIOR: Students are expected to exhibit professional behaviors and dispositions at all times.

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.