

George Mason University
College of Education and Human Development
[Program Name]

KINE350 002 Exercise Prescription and Programming
3 Credits, Spring 2020
MW 9:00-10:15am
Katherine Johnson Hall 253 – SciTech Campus

Faculty

Name: Dr. Jennifer Fields
Office Hours: By Appointment
Email Address: Jfields8@gmu.edu

Prerequisites/Corequisites

KINE 200, ATEP 300, KINE 310, KINE 370

University Catalog Course Description

This course provides study of the design and implementation of exercise programs for the general population/

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 exercise, 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 sections. 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) Certified Exercise Physiologist (EP-C) exam; however, this is NOT a preparation course for the ACSM-EP-C exam.

Course Delivery Method

This course will be delivered using a lecture and lab format.

Learner Outcomes or Objectives

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

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.

5. Recognize the importance of exercise session documentation.
6. Apply metabolic calculations to determine the intensity, duration, and caloric expenditure of exercise.
7. Analyze the utility of wearable physical activity monitors.

Professional Standards

Upon completion of this course, students will have met the following professional standards: 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
	<p>GENERAL POPULATION/CORE:</p> <p>EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</p>
1.1.11	Knowledge of the following cardiorespiratory terms: ischemia, angina pectoris, tachycardia, bradycardia, arrhythmia, myocardial infarction, claudication, dyspnea and hyperventilation.
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.
1.1.13	Knowledge of the heart rate, stroke volume, cardiac output, blood pressure, and oxygen consumption responses to exercise.
1.1.18	Knowledge of the differences in cardiorespiratory response to acute graded exercise between conditioned and unconditioned individuals.
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.
1.1.31	Knowledge of how the principles of specificity and progressive overload relate to the components of exercise programming.
1.1.32	Knowledge of the concept of detraining or reversibility of conditioning and its implications in exercise programs.
1.1.33	Knowledge of the physical and psychological signs of overreaching/overtraining and to provide recommendations for these problems.
	<p>GENERAL POPULATION/CORE:</p> <p>HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</p>
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.

1.3.2	Knowledge of the value of the health/medical history.
1.3.3	Knowledge of the value of a medical clearance prior to exercise participation.
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.
1.3.5	Knowledge of relative and absolute contraindications to exercise testing or participation.
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.
	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.
1.7.2	Knowledge of the benefits and precautions associated with exercise training in apparently healthy and controlled disease.
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.
1.7.11	Knowledge of and the ability to describe exercises designed to enhance muscular strength and/or endurance of specific major muscle groups.
1.7.12	Knowledge of the principles of overload, specificity, and progression and how they relate to exercise programming.
1.7.13	Knowledge of the various types of interval, continuous, and circuit training programs.
1.7.14	Knowledge of approximate METs for various sport, recreational, and work tasks.
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).
1.7.17	Knowledge of the importance of recording exercise sessions and performing periodic evaluations to assess changes in fitness status.
1.7.18	Knowledge of the advantages and disadvantages of implementation of interval, continuous, and circuit training programs.

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.
1.7.25	Ability to identify and apply methods used to monitor exercise intensity, including heart rate and rating of perceived exertion.
1.7.27	Ability to differentiate between the amount of physical activity required for health benefits and/or for fitness development.
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).
1.7.33	Ability to design, implement, and evaluate individualized and group exercise programs based on health history and physical fitness assessments.
1.7.35	Ability to apply energy cost, VO ₂ , METs, and target heart rates to an exercise prescription.
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).
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).
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.
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.
1.7.40	Ability to explain and implement exercise prescription guidelines for apparently healthy clients, increased risk clients, and clients with controlled disease.
1.7.43	Ability to evaluate flexibility and prescribe appropriate flexibility exercises for all major muscle groups.
1.7.44	Ability to design training programs using interval, continuous, and circuit training programs.
1.7.46	Ability to modify exercise programs based on age, physical condition, and current health status.
	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 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.
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Required Texts

Griffin, JC (2015). Client-Centered Exercise Prescription. 3rd Edition. Human Kinetics. ISBN-13: 9781450453325

ACSM's Guidelines for Exercise Testing and Prescription. 10th Edition. Lippincott Williams & Wilkins (2017). ISBN-13: 9781496339065

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy).

Evaluation

Evaluation Type	Points	Total
Case Studies (5)	30	150
Attendance, Participation, and Professionalism	30	30
Labs (4)	25	100
Client Project (1)	100	100
Client Project Check In (4)	10	4
Quizzes (3)	30	90
Final Exam (1)	100	100
TOTAL		700

Description of Evaluation

Case Studies

Case studies will be assigned for each learning module, they are meant for you to apply the lecture material to “real life” situations. Case studies will be posted on Blackboard. Further details will be provided during class time. (Objectives 1, 2, 3, 4, 5, 6, 7)

Attendance, Participation, & Professionalism

Your attendance, participation and professionalism in class will be recorded. If a significant number of classes are missed or your behavior is not engaged and professional, points will be deducted from your grade. (Objectives 1, 2, 3, 4, 5, 6, 7)

Client Project & Check Ins

Students are assigned a client, and will take the client through a consultation, fitness assessment, and design an exercise prescription appropriate for the client. Throughout the semester check ins will be assigned on Blackboard so that progression can be seen as well as approval of workout plans. You will also present information on their client to the class at the end of the semester in discussion format. (Objectives 1,2,3,4,5,6)

Quizzes

Quizzes will be multiple choice, T/F, short answer format and given periodically throughout the semester. (Objectives 1, 2, 3, 4, 5, 6)

Final Exam

The final exam will be cumulative exam covering material throughout the semester. This material will be similar to that presented on the quizzes throughout the semester. This exam will help you have a better understand of certification tests that you will be required to take in the future. (Objectives 1, 2, 3, 4, 5, 6, 7)

Grading Scale

A 4.0 = 93.0 & above
A- 3.7 = 90.0 – 92.9%
B+ 3.3 = 87.0 – 89.9%
B 3.0 = 83.0 – 86.9%
B- 2.7 = 80.0 – 82.9%
C+ 2.3 = 77.0 – 79.9%
C 2.0 = 73.0 – 76.9%
C- 1.7 = 70.0 – 72.9%
D 1.0 = 60.0 – 69.9%
F 0.0 = 0.0 – 59.9%

Note: * Although a B- is a satisfactory grade for a course, students must maintain a 3.00 average in their degree program and present a 3.00 GPA on the courses listed on the graduation application.

Professional Dispositions

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

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

Class Schedule

Week	Topic	Readings/Assignments
1 1/22	Syllabus, review of fitness assessments, behavioral theories & strategies for promoting exercise	ACSM Ch 12
2 1/27, 1/29	Behavioral theories & strategies for promoting exercise	ACSM Ch. 12
3 2/3, 2/5	Activity counseling Quiz #1	Goal Setting Assignment Due
4 2/10, 2/12	Principle of Program Design: FITT-VP Lab #1 Physical Activity Monitors	
5 2/17, 2/19	Physical Activity Monitor Presentations Exercise Rx – Cardiorespiratory Fitness	ACSM Ch. 6

6 2/24, 2/26	Exercise Rx – Cardiorespiratory Fitness Lab #2: Cardio Rx	Case Study #1 Due
7 3/2, 3/4	Exercise Rx - Cardiorespiratory fitness & H.I.I.T. Quiz #2	
8 3/9, 3/11	Spring Break!	
9 3/16, 3/18	Exercise Rx – Resistance Training	Case Study #2 Due ACSM Ch. 6
10 3/23, 3/25	Lab #3: Muscular Fitness Rx Quiz #3 Exercise Rx – Flexibility & Neuromotor	ACSM Ch. 6
11 3/30, 4/1	Exercise Rx – Weight Management Lab #4: Flexibility, Neuromotor Rx	Case Study #3 Due
12 4/6, 4/8	Quiz #4 Environmental concerns for exercise programming	ACSM Ch. 8
13 4/13, 4/15	Prevention of Injuries Catch Up/Review	Case Study #4 Due
14 4/20, 4/22	Client Project Presentations	Client Projects Due
15 4/27, 4/29	Final Exam	

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

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

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 <https://ds.gmu.edu/>).
- Students must silence all sound emitting devices 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/> .

