George Mason University
College of Education and Human Development
Kinesiology

KINE 380.DL1 - Exercise Prescription and Programming for Special Populations
3 Credits, Fall 2023
Online

Faculty

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Prerequisites/Corequisites

KINE 310, KINE 350

University Catalog Course Description

This course provides study of the pathophysiology of common diseases and conditions with concentration in the design and implementation of exercise programs.

Course Overview

Not Applicable.

Course Delivery Method

This course will be delivered online (76% or more) using an asynchronous format via Blackboard Learning Management system (LMS) housed in the MyMason portal. You will log in to the Blackboard (Bb) course site using your Mason email name (everything before @masonlive.gmu.edu) and email password. The course site will be available on Monday, August 21st.

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 see:

https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#supported-browsers

To get a list of supported operation systems on different devices see: https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#tested-devices-and-operating-systems

- 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 will need a headset microphone for use with the Blackboard Collaborate web conferencing tool.
- 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:
    - Adobe Acrobat Reader: https://get.adobe.com/reader/
    - Windows Media Player: https://support.microsoft.com/en-us/help/14209/get-windows-media-player
    - Apple Quick Time Player: www.apple.com/quicktime/download/

Expectations

- Course Week:
  Because asynchronous courses do not have a "fixed" meeting day, our week will start on Tuesday at noon and finish on Tuesday at noon.
- Log-in Frequency:
  Students must actively check the course Blackboard site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 3 times per week.
- 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 all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.
- 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 weekly course schedule of topics, readings, activities and assignments due.

- Instructor Support:
  Students may schedule a one-on-one meeting to discuss course requirements, content or other course-related issues. Those unable to come to a Mason campus can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.
- Netiquette:
  The course environment is a collaborative space. Experience shows that even an innocent remark typed in the online environment can be misconstrued. Students must always 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 insure accessibility must be registered with George Mason University Disability Services.

Learner Outcomes or Objectives

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

1. Demonstrate knowledge about the pathophysiology, diagnosis and treatment of the major chronic diseases and conditions.
2. Understand how special populations respond to acute and chronic exercise.
3. Design appropriate exercise programs for individuals with chronic diseases and conditions.

Professional Standards (Commission on Accreditation of Allied Health Education Programs (CAAHEP)**)**
Upon completion of this course, students will have met the following professional standards:

DOMAIN I: HEALTH AND FITNESS ASSESSMENT **1) Determine client's readiness to participate in a health-related physical fitness assessment and exercise program.**
i) Knowledge of medical terminology including, but not limited to, total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), triglycerides, impaired fasting glucose, impaired glucose tolerance, hypertension, atherosclerosis, myocardial infarction, dyspnea, tachycardia, claudication, syncope, and ischemia.
j) Knowledge of recommended plasma cholesterol levels for adults based on National Cholesterol Education Program/ATP Guidelines.
k) Knowledge of recommended blood pressure levels for adults based on National High Blood Pressure Education Program Guidelines.
a. DOMAIN I: HEALTH AND FITNESS ASSESSMENT 3) Conduct and interpret cardiorespiratory fitness assessments.

i) Knowledge of cardiorespiratory terminology including angina pectoris, tachycardia, bradycardia, arrhythmia, and hyperventilation.
j) Knowledge of the pathophysiology of myocardial ischemia, myocardial infarction, stroke, hypertension, and hyperlipidemia.
k) Knowledge of the effects of myocardial ischemia, myocardial infarction, hypertension, claudication, and dyspnea on cardiorespiratory responses during exercise.
a. DOMAIN II: EXERCISE PRESCRIPTION AND IMPLEMENTATION **1) Determine safe and effective exercise programs to achieve desired outcomes and goals, and translate assessment results into appropriate exercise prescriptions.**
b) Knowledge of the benefits and precautions associated with exercise training in apparently healthy participants and those with controlled disease.
c) Knowledge of program development for specific client needs (e.g., sport specific training, performance, health, lifestyle, functional ability, balance, agility, aerobic, anaerobic).
q) Skill in designing safe and effective training programs.
r) Skill in implementing exercise prescription guidelines for apparently healthy clients, clients with increased risk, and clients with controlled disease.
b. DOMAIN II: EXERCISE PRESCRIPTION AND IMPLEMENTATION **2) Implement cardiorespiratory exercise prescriptions for apparently healthy clients and those with controlled disease based on current health status, fitness goals and availability of time**
b) Knowledge of the benefits, risks and contraindications of a wide variety of cardiovascular training exercises based on client experience, skill level, current fitness level and goals.
f) Knowledge of abnormal responses to exercise (e.g., hemodynamic, cardiac, ventilatory).
b. DOMAIN II: EXERCISE PRESCRIPTION AND IMPLEMENTATION **3) Implement exercise prescriptions for flexibility, muscular strength, muscular endurance, balance, agility, and reaction time for apparently healthy clients and those with controlled disease based on current health status,** **fitness goals and availability of time.**
e) Knowledge of indications for water-based exercise (e.g., arthritis, obesity).
n) Knowledge of the Valsalva maneuver and its implications during exercise.
b. DOMAIN II: EXERCISE PRESCRIPTION AND IMPLEMENTATION **4) Establish exercise progression guidelines for flexibility, muscular strength, muscular endurance, balance, agility, and reaction time for apparently healthy clients and those with controlled disease based on current health status, fitness goals and availability of time.**
e) Skill in recognizing the need for progression and communicating updates to exercise prescriptions.
b. DOMAIN II: EXERCISE PRESCRIPTION AND IMPLEMENTATION **5) Implement a general weight management program as indicated by personal goals, as needed.**
a) Knowledge of exercise prescriptions for achieving weight related goals, including weight gain, weight loss and weight maintenance.
p) Knowledge of the physiology and pathophysiology of overweight and obese clients.
q) Knowledge of the recommended exercise prescription framework for participants who are overweight or obese.

r) Knowledge of comorbidities and musculoskeletal conditions associated with overweight and obesity that may require medical clearance and/or modifications to exercise testing and prescription.
b. DOMAIN II: EXERCISE PRESCRIPTION AND IMPLEMENTATION **6) Prescribe and implement exercise programs for clients with controlled cardiovascular, pulmonary, and metabolic diseases and other clinical populations and work closely with clients' healthcare providers, as needed.**
a) Knowledge of Industry Standard risk stratification and exercise prescription guidelines for participants with cardiovascular, pulmonary, and metabolic diseases and other clinical populations.
b) Knowledge of Industry Standard relative and absolute contraindications for initiating exercise sessions or exercise testing, and indications for terminating exercise sessions and exercise testing.
c) Knowledge of the physiology and pathophysiology of diseases and conditions (e.g., cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, pulmonary disease).
d) Knowledge of the effects of diet and exercise on blood glucose levels in diabetics.
e) Knowledge of the recommended exercise prescription principles for the development of cardiorespiratory fitness, muscular fitness and flexibility for participants with cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, and pulmonary disease.
f) Skill in progressing exercise programs, according to exercise prescription principles, in a safe and effective manner.
g) Skill in modifying the exercise prescription and/or exercise choice for clients with diseases and conditions (e.g., cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, pulmonary disease).
b. DOMAIN II: EXERCISE PRESCRIPTION AND IMPLEMENTATION **7) Prescribe and implement exercise programs for healthy special populations (i.e., older adults, youth, and pregnant women).**
a) Knowledge of normal maturational changes across the lifespan and their effects (e.g., skeletal muscle, bone, reaction time, coordination, posture, heat and cold tolerance, maximal oxygen consumption, strength, flexibility, body composition, resting and maximal heart rate, resting and maximal blood pressure).
b) Knowledge of techniques for the modification of cardiovascular, flexibility, and resistance exercises based on age, functional capacity and physical condition.
c) Knowledge of techniques for the development of exercise prescriptions for children, adolescents and older adults with regard to strength, functional capacity, and motor skills.
d) Knowledge of the unique adaptations to exercise training in children, adolescents, and older participants with regard to strength, functional capacity, and motor skills.
e) Knowledge of the benefits and precautions associated with exercise training across the lifespan.
f) Knowledge of the recommended exercise prescription framework for the development of cardiorespiratory fitness, muscular fitness and flexibility in apparently healthy children and adolescents.
g) Knowledge of the effects of the aging process on the musculoskeletal and cardiovascular structures and functions during rest, exercise, and recovery.
h) Knowledge of the recommended exercise prescription framework necessary for the development of cardiorespiratory fitness, muscular fitness, balance, and flexibility in apparently healthy, older adults.
i) Knowledge of common orthopedic and cardiovascular exercise considerations for older adults.

j) Knowledge of the relationship between regular physical activity and the successful performance of activities of daily living (ADLs) for older adults.
k) Knowledge of the recommended frequency, intensity, type, and duration of physical activity necessary for the development of cardiorespiratory fitness, muscular fitness and flexibility in apparently healthy pregnant women.

Required Texts

Ehrman, J.K., Gordon, P.M., Vistch, P.S. & Keteytan, S.J. (2023). *Clinical Exercise Physiology*, 5th Ed. Human Kinetics, Champaign, IL.

Course Performance Evaluation

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

- **Assignments and/or Examinations**
  Examinations (4) (55%)
  Exams will be T/F and multiple-choice. Each exam will cover approximate one quarter of the semester's material. Exams will be administered on Blackboard.

  Case Studies, Homework, and Quizzes (18) (30%)
  Case study scenarios relating to specific diseases or conditions will be given with discussion questions to follow. Quizzes will be administered on Blackboard. Other homework assignments, such as discussion board questions, will be assigned throughout the semester.

  Infographic (10%)
  Students will create an infographic detailing a peer reviewed-research article related to exercise and a special population.

- **Other Requirements**
  Professionalism (5%)
  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.*
  ***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.*
  ***Participation** – Participate in class discussions and activities. Demonstrate that you have an interest in the subject matter.*
  ***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.*

- **Grading**

A = 94 – 100	B+ = 87 – 89	C+ = 77 – 79	D = 60 – 69
A- = 90 – 93	B = 84 – 86	C = 74 – 76	F = 0 – 59
	B- = 80 – 83	C- = 70 – 73	

Final letter grades do not round up. For example, a final percentage of 89.99% will result in a B+.

Professional Dispositions

See https://cehd.gmu.edu/students/polices-procedures/
Students are held to the standards of the George Mason University Honor Code. You 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**.

Class Schedule

Week	Content	Chapter	Assignments
Week 1	Introductory Post Review of general exercise prescription guidelines The Profession of Clinical Exercise Physiology		Introductory Blog Post
Week 2	Licensure of CEP Common ECG Dysrhythmias Graded Exercise Testing (GXT)	Chapter 5	Licensure Debate Questions Chapter 5 GXT Case Study
Week 3	Diabetes	Chapter 8	Chapter 8 Diabetes Case Study
Week 4	Obesity	Chapter 9	Chapter 9 Obesity Quiz
Week 5	Hypertension **Exam**	Chapter 10	Chapter 10 Hypertension Case Study **Exam**
Week 6	Dyslipidemia Metabolic Syndrome	Chapter 11 Chapter 12	Chapter 11 Dyslipidemia & 12 Metabolic Syndrome Quiz
Week 7	Acute Coronary Syndromes	Chapter 14	Chapter 14 Acute Coronary Syndromes Case Study
Week 8	Revascularization	Chapter 15	Chapter 15 Revascularization Case Study
Week 9	Chronic Heart Failure	Chapter 16	Chapter 16 Chronic Heart

	Exam		Failure Case Study **Exam**
Week 10	Cardiac Electrical Pathophysiology	Chapter 18	Chapter 18 Cardiac Electrical Pathophysiology Quiz
Week 11	Chronic Obstructive Pulmonary Disease (COPD) Cancer	Chapter 19 Chapter 22	Chapter 19 COPD Case Study Chapter 22 Cancer Quiz
Week 12	Arthritis Osteoporosis	Chapter 24 Chapter 25	Chapter 24 Arthritis Quiz Chapter 25 Osteoporosis Case Study
Week 13	**Exam** Children	Chapter 32	**Exam** Chapter 32 Children Case Study
Week 14	Older Adults Depression	Chapter 33 Chapter 34	Chapter 33 Older Adults Case Study Chapter 34 Depression Case Study
Week 15	Female Specific Issues **Exam**	Resources on Blackboard	**Exam**
	Infographic		**Infographic due noon Friday, December 8th**

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 University Honor Code (see https://catalog.gmu.edu/policies/honor-code-system/).
- 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 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 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 VIA should be directed to viahelp@gmu.edu or https://cehd.gmu.edu/aero/assessments. 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, sexual harassment, interpersonal violence, and stalking:

As a faculty member, I am designated as a "Non-Confidential Employee," and must report all disclosures of sexual assault, sexual harassment, 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 or support measures 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/ .