

PROPOSED
Longwood University
Department of Health, Recreation, and Kinesiology

KINS 486 –Exercise Testing and Prescription

Spring

Lecture: MW 12:00 – 12:50 pm AND T/Th 11:00 pm – 12:15 pm

Lab: Section 1 M 2:00 – 3:40 pm, Section 2 W 2:00 – 3:40 pm, Section 3 M 4:00 – 5:40 pm, Section 4 W 4:00 – 5:40 pm

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Office hours: .WF 11:00 am – 1:00 pm, or by appointment

Course Syllabus

Course Description: This course is designed to provide students with an understanding of fundamental guidelines for exercise testing and prescription methodologies and application of these methodologies to case studies in the field. Students will complete practical lab experiences and examinations under the guidance of an academic supervisor as a course requirement. Students will also gain knowledge relating to the development and administration of exercise programs for special populations. Pre or co requisite: KINS 387. 5 credits. SP.

KINS 486 is the prerequisite class for KINS 392 – Exercise Science Internship. For liability reasons students MUST earn a grade of “C-” or better in order to enroll in KINS 392. Any student who earns a “D+” or below will not be allowed to complete the Exercise Science Internship.

Course Objectives

A lecture plus case study approach will be utilized during this course. Upon successful completion of this course students will be to demonstrate the following course objectives in case study, and oral, written, and practical exam format. Other formative assessments (listed under “Grading” will develop the students’ abilities to apply these objectives to a wide variety of case studies.

- Explain and administer a health-risk appraisal, specifically those recommended by the American College of Sports Medicine, that include medical history, family history of cardiac disease, orthopedic limitations, prescribed medications, activity patterns, nutritional habits, stress and anxiety levels, and smoking and alcohol use.
- Determine the categories of participants who should receive medical clearance prior to administration of an exercise test or participation in an exercise program based on the precautions and contraindications outline by ACSM.
- List the cardiovascular, respiratory, metabolic, and musculoskeletal contraindications that may require further evaluation by medical or allied health professionals before participation in physical activity.
- List the ACSM risk factors for coronary artery disease and apply these risk factors to risk stratification.
- Explain the risk factor concept of coronary artery disease and the influence of heredity and lifestyle on the development of coronary artery disease and the role of exercise training in treatment
- Determine whether or not exercise testing is contraindicated.
- Determine when to stop an exercise test or exercise session that is in progress.
- Demonstrate the skill and ability to properly assess the five components of health-related fitness
- Demonstrate the skill and ability to correctly and safely administer a fitness test
- Explain the importance of fitness assessment and prescription.
- Explain the strengths and weaknesses (limitations) of various fitness assessment procedures.

- Choose appropriate assessment tools for population subgroups (i.e. men, women, older adults, overweight individuals, etc.) and provide a rationale for the choice.
- Prescribe exercise for apparently healthy adults based on properly assessed fitness levels and participant goals that address the health-related fitness components and apply these principles to a wide variety of case studies.
- Prescribe exercise for special populations based on properly assessed fitness levels and participant goals that address the health-related fitness components and apply these principles to a wide variety of case studies..
- Modify exercise testing conditions based on individuality and client responses.
- Modify exercise prescriptions based on individuality and client responses.
- Communicate complex exercise, health, and wellness information appropriately to clients and apply these communication strategies to a wide variety of client situations (case studies).
- Explain all assessment procedures covered in class in simple, easy to understand terms.
- Understand and apply the principles of behavior modification to exercise adoption and adherence and apply these principles to a wide variety of case studies..
- Perform CPR.

Course Content Outline

- Health screening, risk stratification, blood pressure measurement
- CAD risk factors, signs and symptoms of disease
- Contraindications to exercise and exercise testing
- Body composition assessment, muscular fitness assessment, cardiorespiratory fitness assessment
- General exercise prescription
- Exercise prescription for special populations
- Introduction to cardiac rehabilitation
- Health behavior psychology

Required Materials

American College of Sports Medicine (2010). ACSM's Guidelines for Exercise Testing and Prescription. Lippincott, Williams & Wilkins: 9th Edition.

Scientific calculator capable of performing functions involving parenthetical expressions.

Heart rate monitor that detects HR using a chest strap. Polar FT1 heart rate monitors are available at the bookstore.

This is the most basic type of HR monitor that will fulfill the requirements for this class. Students may choose to purchase a different brand and type of HR monitor that has more functions. These types of HR monitors range from ~\$80 to hundreds of dollar depending on the functions the monitor has. Please choose the HR monitor that fits your needs and budget. HR monitors can be purchased online but must be available for use in the first lab.

KINS 486 Lab Manual. Please bring this lab manual with you to all your lab classes.

KINS 392 Exercise Science Internship Policies and Procedures Manual. Please bring this manual to all the internship meetings noted on the course schedule.

Course Requirements

Syllabus Quiz (20 points)

The first quiz will be on the first day of class and will be worth 20 points. Students who cannot be at the first class must complete the quiz by the end of the first week of classes.

Quizzes (~130 points)

There will be a short, 10 point, quiz every Friday there is a class scheduled during the first 10 minutes of class. Students must arrive at class on time to make use of the entire 10 minute period. Students who arrive late will have less time to complete their quiz. Quizzes will cover material recently covered in class but may also be comprehensive and cover important concepts from previous material. Some quizzes may be open book or require calculations so it is recommended that students bring their ACSM Guidelines for Exercise Testing and Prescription and calculators to class.

Students who are absent will receive a 0. Quizzes cannot be made up. If you would like an exemption for a missed quiz due to medical emergencies or conditions, you must provide relevant doctors notes. Since the burden of proof is on you, if you choose not to provide this information, you may be penalized for the missed quiz as outlined here. Accommodations may or may not be granted on a case by case basis at the discretion of the instructor.

Midterm Exams (100 points each)

The midterm exam will cover all material covered in class to date including practical work.

Final Exam (100 points)

The final exam is comprehensive and will cover all material from lectures, discussions, case studies, assignments, and labs.

Final Practical Exam (100 points)

The final practical exam will be scheduled at the end of the semester and will involve student pairs performing practical fitness assessments.

Oral Exams (60 points each)

There will be two individual oral exams. The first oral exam will focus on communicating fitness test information to a client. The second oral exam will focus on explaining health and fitness results to a client and providing general exercise and health recommendations.

Lab Reports (120 points)

There will be a short lab report that must be completed during the lab period. Lab reports are due at the end of the lab period. Late lab reports will receive a 5 point deduction. Lab reports will not be accepted more than seven days after the corresponding lab. Students who do not attend lab will receive a zero for their lab report.

Heart Rate Monitoring Assignment (155 points)

Details will be provided in class.

Health Behavior Psychology Assignment (100 points)

A case study assignment that specifically applies health behavior psychology techniques to a sample client that matches the students proposed internship setting (i.e. cardiac rehab patient, strength and conditioning client, fitness client)

Case Study Assignments (20 points each, 180 points)

Case Studies will be assigned at the end of each block of lecture material. Due dates are listed on the syllabus. Case studies will consist of no more than one page of written material that answers the questions posed by each case study. Examples will be completed in class in group work. Case study assignments will be submitted electronically via Canvas. Case studies will cover course objectives and will gradually increase in complexity and depth as the semester progresses.

Grading

The final grade will be based on total points earned during the semester. Assigned point values are as follows:

Exam I:	100 points
Exam II:	100 points
Final – written:	100 points
Final - practical:	100 points
Oral exams:	120 points
Syllabus Quiz:	20 points
Quizzes:	~130 points
Lab reports:	120 points
Heart Rate Monitoring Assignment	155 points
Final Health Behavior Psychology Assignment	100 points
Case studies	180 points

Grades will be assigned as follows:

	B+ = >88%	C+ = >78%	D+ = >68%
	B = 83 - <88%	C = 73 - <78%	D = 63 - <68%
A = >90%	B- = 80 - <83%	C- = 70 - <73%	D- = 60 - <63%

F = \leq 60%

NOTE: There is no extra credit available for this class. Points earned are posted on Canvas where the student may access his/her scores at any time.

Class Attendance Policy

Students are expected to attend all classes as scheduled by the instructor. Students must assume all responsibility for any loss incurred because of absence. While there is no attendance policy for this class, students should note that students who attend and participate in class regularly tend to perform better than students who choose not to come to class.

Lab Attendance Policy

Students are expected to attend all labs as scheduled by the instructor. Students who do not come to lab will likely perform poorly on quizzes and exams. Students must attend the lab section they are enrolled in. If a student is unable to attend their normal lab time he/she must find a student in the other section to swap with. This swap must be approved by the instructor PRIOR to the lab in question. You may request this swap via email. ***Students must come to lab appropriately dressed for exercise and must bring a scientific calculator and HR monitor.*** Each lab report is worth 10 points, you must attend and participate in the lab activity to earn these points. Lab reports are due at the end of the lab period. Students who do not attend lab will receive a 0 for their lab report. Late lab reports will receive a 5 point deduction. Lab reports will not be accepted later than seven days after the corresponding lab.

Honor Code

It is the responsibility of Longwood University students to adhere to the Honor Code and conduct themselves to the highest standards of integrity. Students are deemed honorable unless their conduct proves otherwise. As a member of the University community, you are expected to live by the Honor Code and to pledge all class work. Students who violate the honor code will receive an "F" for the course.

Accommodation of Special Needs

In accordance with university policy, I make every effort to accommodate unique and special needs of students with respect to speech, hearing, vision, seating, or others disabilities. Please notify the Office of Disability Services to register for services.

Canvas and Email

Students should consult Canvas frequently. Class notes and slides will be posted on Canvas prior to class, students scores will be posted on Canvas. In the event that I need to communicate with the class or an individual student I will utilize university email and/or the announcement function on Canvas. Please check your university email account frequently, or have your email from this account forwarded to an account that you check regularly. Turnitin plagiarism software is used in this class.

Inclement Weather and Lab Makeup Policy

If a lab class is cancelled due to weather or other circumstances beyond control. Lab will *only* be cancelled if there is a posted cancellation of classes, or delayed opening on the University website. Make-up lab sessions will be scheduled in consultation with the affected lab group.

Class Schedule

Please note that the instructor reserves the right to alter the syllabus or schedule if it is determined that such a change will benefit the course and the students.

Week	Dates	Topic	Chapter
1	1/14-1/18	Classes start 4 pm Monday – No class Monday Introduction, review of syllabus and course requirements, quiz Beginning a health screening (PAR-Q and informed consent); blood pressure measurement, case study analysis of health screening Lab: CPR Training	1, 2, 3
2	1/21-1/25	CAD risk factors, risk stratification, signs and symptoms of disease, contraindications to exercise and exercise testing, case study analysis of risk stratification Case Study #1 Risk Stratification Due 1/25, 11:59pm Lab: Blood Pressure Measurement	1, 2, 3
3	1/28-2/1	Risk factors, risk stratification, signs and symptoms of disease, contraindications to exercise and exercise testing, case study analysis of contraindications. Case study #2 – Contraindications – Due 2/1, 11:59 pm Lab: Body Composition Internship Meeting –Monday lecture time	1, 2, 3
4	2/4-2/8	Body composition assessment Muscular strength and endurance assessment, flexibility assessment Case study analysis of body composition and muscular strength assessment, and application to exercise prescription. Case study #3 – Interpretation of muscular strength and endurance, and flexibility test results – due 2/8, 11:59 pm Lab: Muscular Fitness	4
5	2/11-2/15	Cardiorespiratory fitness assessment Case study analysis of cardiorespiratory fitness assessments and application to exercise prescription. Case study #4 – Interpretation of cardiorespiratory fitness test results – due 2/15, 11:59 pm Lab: Astrand-Ryhming Bike Test	4
6	2/18-2/22	Review for Exam I Exam I – Wednesday 2/20 General exercise prescription for health-related fitness, case study analysis of general exercise prescription. Case study #5 - Application of fitness test results to general exercise prescription – due 2/22, 11:59pm. Lab: Single Stage Walking and Jogging Tests	

7	2/25-3/1	General exercise prescription for health-related fitness, case study analysis for general exercise prescription. Application of fitness test results to general exercise prescription. Introduction to cardiac rehab. Lab: YMCA Bike Test Internship Meeting – Monday lecture time	7
8	3/4-3/8	Introduction to cardiac rehab, case study analysis of exercise prescription and progression in a cardiac rehab setting Oral Exam #1 this week Lab: Swain Bike Test HRM Assignment Part 1 and Part 2 due Thursday 3/7, 5 pm	
	3/11-3/15	SPRING BREAK	
9	3/18-3/22	Pathophysiology and general exercise prescription for special populations, case study analysis of exercise prescription for special populations. Case study #6 – Exercise prescription for special populations – Diabetes and obesity – due 3/22, 11:59 pm Lab: Submaximal Bruce Treadmill Test	8, 9, 10
10	3/25-3/29	Pathophysiology and general exercise prescription for special populations, case study analysis of exercise prescription for special populations. Case study #7 – Exercise prescription for special populations – Hypertension and aging – due 3/29, 11:59 pm Lab: Submaximal Naughton Treadmill Test	8, 9, 10
11	4/1-4/5	Pathophysiology and general exercise prescription for special populations, case study analysis of exercise prescription for special populations. Review for Exam II Exam II – Wednesday 4/3 Lab: Balke-Ware Ramp Treadmill Test	8, 9, 10
12	4/8-4/12	Health behavior psychology, case study analysis of health behavior modification principles and application. Case study #8 – Health behavior psychology – identifying motivational readiness, due 4/12, 11:59 pm Lab: Field Tests Internship Meeting – Monday lecture time	7
13	4/15-4/19	Health behavior psychology, case study analysis of health behavior modification principles and application. Case study #9 – Health behavior psychology – applying behavior change principles, due 4/19, 11:59 pm Lab: Practice time	7
14	4/22-4/26	Health behavior psychology, case study analysis of health behavior modification principles and application. Review for final exam Lab: Practical and Oral Exams	7

COMPREHENSIVE FINAL EXAM

Bibliography

American College of Sports Medicine (2013). ACSM's Resource Manual for Guidelines for Exercise Testing and Prescription. Lippincott, Williams & Wilkins: 7th Edition.