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## **KINE 4700 EKG Interpretation and Stress Testing**

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## COURSE OUTLINE

**1. Course Title:** KINE 4600 EKG interpretation and stress testing

**2. Course Description:** This course is designed to improve students' understanding and interpreting of EKG tracings at rest and during stress testing. An understanding of cardiac physiology and electrocardiography is an important aspect of clinical exercise physiology. This course is designed to fill the needs of students who desire the ability to interpret the resting normal, abnormal EKG, as well as provide an overview of heart anatomy, function and neurophysiology. In addition, the course will provide the EKG interpretation during stress testing, which will provide valuable knowledge and skills as a future health care professional.

Instructor:

Time: Lecture 1:15 2x week

Lab: 2:45 1x week

### 3. Course Objectives

**CO1 Describe the anatomy of the human heart.**

**CO2 Describe the electrical system of the human heart.**

**CO3 Describe the autonomic nervous system regulation of the human heart.**

**CO4 Be able to prep and perform an EKG test.**

**CO5 Describe the location of electrodes.**

**CO6 Recognize a normal sinus rhythm and compare to an arrhythmia.**

**CO7 Describe and determine the electrical axis of the heart based on EKG tracings.**

**CO8 Describe and recognize atrial and ventricular hypertrophy.**

**CO9 Recognize infarction and describe the location of the infarction**

**CO10 Interpret any EKG using rate, rhythm, axis, hypertrophy, and infarction.**

**CO11 Recognize ECG patterns that are associated with abnormal cardiac responses to exercise and indication for the termination of the exercise test.**

**4. Catalogue Description:** This course will focus on the interpretation of EKG's at rest and during stress testing, which is an important skill of clinical health professionals. Laboratory part is included.

**5. Credit:** 4 Units

**6. Purpose of the course:** The purpose of the course is to enhance our students'

understanding in underlying cardiac electro physiology and basic EKG interpretation at rest and during stress test in normal and pathological condition.

**Prerequisite for:** KINE 3800 Exercise Physiology

**Required/Elective for:** This course an elective course for the Exercise Science concentration in Kinesiology.

**7. List the principle topics covered in this course.**

- a. Understand cardiac electro physiology
- b. Identify waves and segments of EKG and its characteristics
- c. Understanding resting EKG
- d. Identify abnormal and pathological EKG tracings
- e. Stress test EKG
- f. Learn how to read live EKG tracings

**8. Describe how this course relates to other courses in the department:**

This course is an extension of exercise physiology, introduction to fitness and programming, exercise testing and prescription by applying physiological and instrumental knowledge into clinical condition.

**9. Identify and justify any overlap with other courses either in the department or in another department.** Students learn the basics of electrophysiology and exercise testing in exercise physiology class. This class applies the basic knowledge from other classes into more in-depth and practical setting to enhance our students' clinical skills and knowledge.

**10. Textbook:**

**Required:** Dubin, D. (2000) Rapid Interpretation of EKG's 6<sup>th</sup> Edition; Cover Publishing, ACSM's

**Supplemental:** Guidelines for Exercise Testing and Prescription 10<sup>th</sup> edition, Wolters Kluwer

**11. Journals:** Selected peer reviewed journal articles may be implemented

## Course Outline

LECTURE	LAB
Week 1: Intro to class/Review the syllabus Chapter 1: Basic Principles	Week 1: Introduction to equipment (EKG machine, electrodes, etc.) EKG placement and hook-up
Week 2: Chapter 2: Recording the EKG	Week 2: Introduction to protocols, stress tests, and emergency procedures Standard resting EKG protocol Simulator practice
Week 3: Chapter 3: Autonomic Nervous System Chapter 4: Rate	Week 3: Cover chapter 4: Rate Resting EKGs? BP practice rest & exercise Simulator practice
Week 4: Chapter 5: Rhythm, Part 1	Week 4: Quiz on electrode placement Practice Strips Simulator practice
Week 5: Chapter 5: Rhythm, Part 2	Week 5: Review for Exam 1
Week 6: Review Lecture Exam	Week 6: Strips Exam Chapters 1-5
Week 7: Chapter 6: Blocks	Week 7: Stress Test with classmates EKG strip identification
Week 8: Chapter 7: Axis	Week 8: Stress Test with classmates EKG strip identification
Week 9: Review for Exam 2	Week 9: Stress Test with classmates EKG strip identification
Week 10: Lecture Exam Chapters 1-7 Review Exam 2?	Week 10: Lab exam Chapters 1-7
Week 11: Chapter 8: Hypertrophy	Week 11: Stress Test with classmates EKG strip identification
Week 12: Chapter 9: Infarction	Week 12: Stress Test with classmates EKG strip identification
Week 13: Chapter 9: Infarction	Week 13: Outside individual
Week 14: Chapter 10: Miscellaneous	Week 14: Outside individual
Week 15: Review for Final	Week 15: Outside individual & Review session
Week 16: Lecture Final Chapters 1-10	Week 16: Lab Final Chapters 1-10

\*\* Combine Lecture and lab final