

**UNIVERSITY OF EDUCATION, WINNEBA  
DEPARTMENT OF HPERS**

**2007/2008 ACADEMIC YEAR --SEMESTER II**

**COURSE CODE** : **PES 241**  
**COURSE TITLE** : **EXERCISE PHYSIOLOGY**  
**NO. OF CREDITS** : **TWO (2)**  
**INSTRUCTOR** : **EMMANUEL OSEI SARPONG**

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**MENTOR** : **DR. J.O. A. AMMAH**

**RATIONALE AND DESCRIPTION**

A study of the physiological responses and adaptations to exercise as related to human performance limitations, training effects and health related benefits. Emphasis is given to the cardiovascular basis of such phenomena, interrelating topics such as circulatory physiology, energy production (athletic nutrition), fatigue, and aids that are impediments to athletic performance.

**COURSE OBJECTIVES**

Upon the completion of the course, the student will be able to:

1. Explain the meaning of Exercise Physiology and tell its importance
2. Define the terms HEMEOSTASIS and STEADY STATE and explain NEGATIVE FEEDBACK.
3. Give the physiological explanation for the observation that the oxygen debt is greater following intense exercise when compared to the oxygen debt following light exercise.
4. Define the terms CONCENTRIC and ISOMETRIC contractions and their effectiveness in movement
5. Give an overview of the design and function of the circulatory system
6. Outline the circulatory responses to various types of exercise
7. Discuss the regulation of cardiac output during exercise
8. Define the four processes of heat loss during exercise
9. Describe the effects of carbohydrate diets on muscle glycogen and on endurance performance during heavy exercise

10. Describe the process of adaptation to altitude, and the degree to which this adaptation can be complete.
11. Define ergogenic aid, and describe blood doping and its potential for improving endurance performance
12. Describe the physiological and psychological effects of different types of warm-ups.

## **INSTRUCTIONAL STRATEGIES**

Lectures, discussions, and class activities to be employed to achieve the stated objectives

## **EXAMINATION**

Students will be assessed periodically in the course of the semester. The instructor shall inform students of any impending assessment. In addition to the continuous assessment there will be an end of semester examination. Students who fail to do their assignment or show up for examination will not be allowed to make up, except on medical grounds with a medical report from a recognized physician.

## **ATTENDANCE**

Attendance will be checked before the start of each session. Students are expected to attend all class sessions. Students will be allowed only two absences during the period. Subsequent absences shall attract a point deduction from total points made in course work.

## **TARDINESS**

Lateness to lectures will not be tolerated. Students who are late twice for lectures will be counted as one absence.

## **EVALUATION PROCEDURES**

Continuous Assessment (quizzes, assignments etc) .....	40%
End of semester Examination	60%

## **ACADEMIC DISHONESTY**

Academic dishonesty will not be allowed. Any form of academic misconduct (cheating etc) will not be tolerated. All cases of confirmed or suspected dishonesty will be referred to the Departmental Academic Board and eventually to the University's Academic board.

## **GRADING**

A	=	80 – 100
B+	=	75-70
B	=	70 – 74
C+	=	65 -69
C	=	60-64
D+	=	55-59
D	=	50-54
E	=	49 and BELOW

## **TOPICAL OUTLINE**

1. What is Exercise Physiology? What is the importance of exercise physiology?
2. Control of the internal environment
3. Skeletal muscle: Structure and function
4. Respiration during exercise
5. The nervous system – structure and control of movement
6. Exercise metabolism
7. Temperature Regulation
8. The circulatory system and exercise
9. Factors affecting performance
10. Training for performance
11. Nutrition, body composition and performance
12. Fuels for exercise
13. The physiology of training
14. Environment and exercise
15. Ergogenic Aids

## REFERENCE

Arnould-Taylor, W.E. (1988), A textbook of Anatomy and Physiology (2nd ed.)  
Cheltenham, UK, Stanley Thomas (Publishers) Ltd.

Fox, E, Bowers & Foss M, (1995), The Physiological Basis for Exercise and Sport (5<sup>th</sup> ed.) Madison; Brown and Benchmark Publishers

Gensemer, R.E. (1995), Physical Education (Perspective inquiry, application)( 3<sup>rd</sup> ed.)  
Madison: Brown and Benchmark Publishers.

Lamb, D (1984), Physiology of exercise (Responses and Adaptations) ( 2<sup>nd</sup> ed) New York N.Y.; Mac Millian Publishing Company

Powers, S.K. & Howley E.T. (2001), Exercise Physiology (Theory and Application to fitness and Performance (4<sup>th</sup> ed.). New York N.Y.; Mc Graw-Hill

Thompson, P.J.I .., (1991), Introduction to coaching theory; IAAF Coaches Education and Certification System, West Sussex UK, I & S Printing Company Ltd.