

DISCLAIMER: The course outline below serves as a general informational guide for students. Course content and assessment modes may vary for different lecturers. Actual course outlines will be made known to students on GeNIEus by the individual lecturers. **DO NOT** purchase textbooks based on the information contained in this document.

IPE3105 PHYSIOLOGY OF EXERCISE

COURSE DESCRIPTION

The purpose of this course is to equip student teachers in PE with an understanding of fundamental human and exercise physiology so as to enable them to design safe and effective lessons or training for 1) students during PE lessons and 2) student athletes gearing for sports performance.

A lecture and laboratory based foundation course in exercise physiology for student teachers in Physical Education (PE). The principal areas covered include the energy metabolism for exercise, aerobic performance and anaerobic performance, sex and age-associated differences in exercise performances and thermoregulation in the heat. The associated teaching implications will be brought to the fore. In addition, aspects of functional anatomy dealing with the various systems of the body and the part each plays in physical performance, health and fitness will be discussed in this course.

COURSE OBJECTIVES

At the completion of this course, student teachers will be able to:

1. Describe the metabolic processes which are anaerobic ("without oxygen"), and aerobic ("with oxygen").
2. Explain that the energy for activity comes from the breakdown of adenosine triphosphate.
3. Explain the influence of maximal oxygen uptake on endurance performance.
4. Explain other factors that also influence endurance performance.
5. List the physiological adaptations from training.
6. Exhibit an understanding of the thermoregulatory function of the body and the importance of adequate hydration in maintaining exercise performance and health in the heat

COURSE CONTENT

1. Energy for movement: bioenergetics and exercise metabolism
2. Measurement of energy expenditure
3. Hormonal control during exercise
4. Muscular control of movement
5. Neural control of movement
6. Cardiovascular control during exercise
7. Respiratory control during exercise
8. Adaptations to resistance training
9. Adaptations to endurance training
10. Adaptations to high intensity/sprint training
11. Thermoregulation and exercise in the heat
12. Hydration and nutrition for exercise and sports

COURSE ASSESSMENT

	Component weightage	Due Dates
Class test	60 %	dd-mm-yr
Assignment	40 %	dd-mm-yr

Participation in all classes is compulsory.

COURSE REFERENCES

Recommended Texts

1. Plowman, S. A. and Smith D. L. (1997), *Exercise Physiology for Health, Fitness, and Performance* Allyn and Bacon. 2nd edition.
2. Scott K. Powers & Edward T. Howley: *Exercise Physiology. Theory and Application to Fitness and Performance*. 5th edition.