COURSE OUTLINE

Academic Division: Division of Health and Physical Education
Instructor: Diane E. Burr/ George Judd
Course Title: Applied Anatomy, Physiology and Human Performance
Course Prefix and Number: PE 358 & 359

I. Catalog Description:
This course is designed to be a cooperative learning experience in understanding the structure and function of the human body and its application to human movement and exercise physiology.

II. Course Purpose:
This course is a required course for students majoring in Physical Education and enrolled in the Athletic Training Program. This course is designed to be a cooperative learning experience in understanding the structure and function of the human body and its application to human movement and exercise physiology. It is designed to integrate anatomy and physiology, biomechanics, kinesiology, and exercise physiology. The rationale is that application is easier when information is presented in a comprehensive rather than piecemeal fashion.

The class is designed to allow time for lecture and application of material (laboratory) in a more extended way. Monday, Wednesday and Friday will primarily be handled as lecture days. Tuesday and Thursday will be lecture/lab periods. Lecture days generally will focus on the delivery of information with lab periods designed for group interaction and application of the material through group assignments or projects.

Students will be expected to develop projects that allow them to demonstrate their creativity and challenge their ability to integrate and apply factual knowledge.

This course helps to fulfill the following NCATE and North Dakota Program Approval Standards and Criteria: North Dakota Standards 8.20.1 and 8.20.5; NCATE Standards I.C., I.E., and I.G.

III. Course Objectives
Upon successful completion of the course, the student will:

A. have an in-depth knowledge of the scientific course work necessary to satisfy the requirements for the Physical Education Major and Athletic Training Program.
B. have participated in an enhanced learning environment through team projects and cooperative learning.
C. enhanced the relevance of information through an interdisciplinary integration.
D. have participated in an environment which fosters learning to meet the demands of the future.
E. have developed problem-solving skills
F. be able to organize access material so that they may develop integrated competencies.
IV. Divisional Abilities:
Upon completion of this course, students will have made progress towards the following Divisional Abilities:

A. Demonstration problem solving skills.
B. Demonstrate effective communication skills

V. University Abilities

A. Demonstrate the ability to work in a collaborative fashion.

VI. Specific Strategies Used to Meet Divisional and University Goals:

Problem Solving:

1. Open-ended research questions will be assigned throughout the year which will develop the students ability to investigate, analyze and draw logical conclusions.
   
   Example: You read in National Geographic that a team of archaeologist recently completed an examination of 18 skeletons from people buried under tons of volcanic ash 1,2000 years ago. By analyzing the bones, the scientist were able to determine the sex, physical health (including a partial medical history), approximate age, and even the general profession of each the 18 individuals. How could the examination of a preserved skeleton yield such a vast array of information?

Communication:

1. Students will be assigned projects which require written and verbal communication skills to investigate and analyze a curriculum based problem.

   Example: Your group must pick a sport skill that you will research. This research will include a literature review, video biomechanical comparative analysis, and remedial recommendations for skill improvement based on the literature.

Collaboration:

1. Students will engage in ongoing group learning activities which will be designed to support the tenets of Cooperative Learning.

   Example: Each group will define the following joints and give an example of each. Be able to define the following movement types and illustrate each. Each group will present their information to the class in a multi-media format.

VII. General Learning Activities: (to help students acquire the course objectives)

This course will depend on the following means to help students acquire the major objectives A-F:

1. Cooperative group presentations on the following systems:
   a. Ergogenic Aids
b. Skeletal System
c. Muscular System
d. Scientific Principles of Movement
e. Articular System
f. Nervous Innervation
g. Digestive System

2. Major multi-media presentations
   a. Biomechanical Analysis
   b. Celebrating Human Movement
   c. Other selected topics

3. Lecture and In-class activities on major topic areas

4. Special activities
   a. newsletters
   b. field trips experiences
   c. cooperative learning activities

VIII. Evaluation:
The students will be evaluated in terms of exams, group evaluations, written assignments, mini-projects, major projects, writing and research projects with group presentations, and other projects as determined by instructors.

IX. Topic Outline:
The major course topics will be presented in the following order:

Section I
A. Introduction to group dynamics and Group Investigation Model
B. Introduction to computers
C. Group Projects and survey
D. Historical overview of anatomy and physiology
E. Chapter One
F. Integumentary System (Chapter 5)
G. Related projects to Chapter 5
H. Osteology Chapters 6-8
I. Articulations Chapter 9
J. Skeletal System
K. Related projects to Skeletal System

Section II
A. Neurophysiology
B. Muscular Tissue
C. Muscular System
   1. Biomechanical Considerations and Concepts regarding Movement
D. Major Biomechanics Project
E. Cardiovascular System
F. Cardiovascular Physiological Considerations

Section III
A. Respiratory System
B. Respiratory Physiology
C. Cardio-respiratory Testing (to be done in conjunction with Mercy Hospital)
D. Physical Considerations in Training (Aerobic & Anaerobic)
E. Research related to the enhancement of performance
F. Gender considerations
X. Research Base:
This course was designed in accordance with recommendations of the
American Alliance for Health, Physical Education, Recreation and Dance, the
American College of Sports Medicine and writings and research of many of the
nation's leading experts in the area of study. Among those included are: I. Astrand,
G. Tortora, S. Grabowski, C. Thompson, E. Kreighbaum, K. Barthels, B. Noble, R.
Brookes, J. Fox, R. Mathews, D.A. Bligh, M. Clark, A. Combs, J. Cooper, J. Goodlad,

XI. Textbook(s) and Selected References:
Tortora, G. and Graboski, S. Principles of Anatomy and Physiology (8th Ed.).
Gench, B.E., Hinson, M.M. and Harvey, P.T. Anatomical Kinesiology (1st Ed.).
Thompson, C. and Floyd, H.T. Manual of Structural Kinesiology (14th Ed.)
Boston: McGraw Hill

XI. Maximum Enrollment Per Section: 30

XII. Type of Course:
Lecture: X Laboratory: X Discussion: X