

## **COURSE OUTLINE** **Principles of Strength Training**

### **Course Description**

PE 116. Principles of Strength Training. 3 hours credit. This course will enable the student to understand the physiological responses of the body to strength training and the means of designing safe and effective exercise programs in preparation for a career as a personal trainer, coach, or physical education instructor.

### **Course Relevance**

The concepts learned in this course will allow the student to understand and utilize the knowledge of the principles of strength training in a career as a personal trainer, coach, or physical education instructor.

### **Required Materials**

Moran, G. & McGlynn, G. (2000). Dynamics of Strength Training and Conditioning. (3rd ed.). Boston, MA: McGraw-Hill Companies.

### **Learning Outcomes**

The intention is for the student to be able to

1. Demonstrate an understanding of the benefits of fitness through the development of a plan of health-enhancing behaviors
2. Utilize an understanding of the principles of strength training

### **Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course**

Through the student's involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Health Management
  - The student will expand his/her awareness of the health benefits of regular physical exercise, fitness, flexibility and proper nutrition.
2. Critical Thinking
  - The student will develop critical thinking and analytical skills through designing strength training exercise programs

Secondary skills (developed but not documented):

Teamwork  
Ethical Conduct  
Problem Solving  
Time Management

## **Major Summative Assessment Task(s)**

These learning outcomes and the primary Learning PACT skills will be demonstrated by:

1. Completion of three month periodized resistance strength training programs for sedentary adults, prepubescent youth, pregnant women and senior citizens. Each program should include health screening and evaluations, resting test batteries, cardiorespiratory fitness evaluation, and muscular strength and endurance testing.

## **Course Content**

- I. Themes – Key recurring concepts that run throughout this course:
  - A. Fundamentals of weight training
  - B. Physiological and psychological benefits of strength training
- II. Issues – Key issues that will be addressed in this course:
  - A. Safety concerns and injury prevention
  - B. Motivation
  - C. Ethical conduct: performance enhancing drugs
- III. Concepts – Key concepts that must be understood to address the issues:
  - A. Establishing training goals
  - B. Evaluation and self-assessment
  - C. Time management
  - D. Nutrition
- IV. Skills / Competencies – Actions that are essential to achieve the course outcomes:
  - A. Assessments for flexibility, cardiorespiratory endurance and strength
  - B. Solve problems and make decisions for effective training programs
  - C. Leadership and communication as a trainer or coach
  - D. Organizing exercise programs

## **Learning Units**

- I. Popularity of Strength Training
  - A. Misconceptions in strength training
  - B. Physiological benefits of training
  - C. Psychological benefits of training
  - D. Adaptation
  - E. Glossary of terms
- II. Elements of Fitness
  - A. Importance of strength training
  - B. Skeletal muscular-strength
  - C. Skeletal muscular-endurance
  - D. Cardiorespiratory endurance
  - E. Body composition
- III. Fundamentals of Weight Training
  - A. Training goals

- B. Setting up the program
  - C. Order of exercises and recovery
  - D. Safety concerns
- IV. General Programs
- A. Sport and fitness conditioning programs
  - B. Strength development programs
  - C. Muscular endurance development programs
  - D. Bodybuilding
- V. Motivation and Mental Conditioning
- A. Why we drop out
  - B. Mental reparation
  - C. Focus, attention, and concentration
- VI. Evaluation and self-assessment
- A. The importance of evaluation
  - B. Muscular strength assessments
  - C. Muscular endurance assessments
  - D. Cardiorespiratory assessments
- VII. Skeletal Muscle
- A. Structure
  - B. Agonist and Antagonist
  - C. Hypertrophy and Hyperplasia
  - D. Atrophy
  - E. Muscle soreness
- VIII. Training Concepts
- A. Force potential
  - B. Strength, power, speed
  - C. Muscular contraction
- IX. Advanced Training
- A. Pyramid systems
  - B. Super sets, super pump, and burnouts
  - C. Partial, forced, and negative repetitions
  - D. Power and speed exercises
  - E. Plyometric exercises
- X. Upper and Lower Body Exercise
- A. Chest, upper back, shoulder exercises
  - B. Arm exercises
  - C. Lower back and abdominal exercises
  - D. Lower body exercises

## XI. Strength-training and Women

- A. Physical differences
- B. Pregnancy
- C. Female athlete triad
- D. Eating disorders

## XII. Cardiorespiratory Fitness

- A. Cardiorespiratory endurance
- B. Anaerobic versus aerobic
- C. Target Heart Rate
- D. Exercise prescription

## XIII. Flexibility

- A. Static stretching
- B. Ballistic stretching
- C. PNF stretching
- D. Principles of stretching

## XIV. Injuries

- A. Common injuries
- B. Healing
- C. Basic terminology

## XV. Nutrition

- A. Nutritional requirements
- B. Water
- C. Energy for muscle
- D. Diets
- E. Basic nutritional recommendations

## XVI. Drugs

- A. Anabolic steroids
- B. Stimulants
- C. Steroid replacers
- D. Food supplements

## XVII. Equipment

- A. Resistance machines
- B. Free Weights

## **Learning Activities**

Independent and collaborative learning activities will be assigned within and outside the college classroom to assist the student in achieving the intended learning outcomes. Class discussion, lectures, audio-visual aids, group activities, reading assignments, guest speakers, laboratory assignments and internet activities will also contribute to the learning process.

**Grade Determination**

The student will be graded on completion of assessment tasks, class participation, out-of-class assignments, laboratory assignments, examinations, and other methods of evaluation at the discretion of the instructor.