

I. CATALOG DESCRIPTION:

A. Department Information:

Division: Physical Education
Department: Physical Education
Course ID: PE 238
Course Title: Exercise Theory, Testing and Prescription
Units: 3
Lecture: 2 hours
Laboratory: 2 hours
Prerequisite: PEI/138x4.

B. Catalog Description:

This course is designed to teach the recreational exerciser or fitness instructor basic exercise physiology, health screening and risk appraisal, exercise testing, exercise prescription and program design. Practical skills are applied with hands-on technique training, assessment, and program design. Students will be taught how to tailor programs to meet health, fitness or performance goals.

Schedule Description:

Designed to teach the recreational exerciser or fitness instructor basic exercise physiology, health screening and risk appraisal, exercise testing, exercise prescription and program design.

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS:

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

- A. Identify major health benefits of regular exercise.
- B. State and define components of fitness.
- C. Distinguish between the three energy systems utilized when exercising.
- D. Explain muscle function during exercise.
- E. Design programs that enhance metabolic fitness: development of power, speed or endurance.
- F. Recognize and apply principles of training.
- G. Assess components of fitness.
- H. Design programs to improve components of fitness.
- I. Design programs to enhance power and speed.
- J. Implement safe and effective plyometric and jumping programs.
- K. Perform and instruct proper technique for weight training exercises.
- L. Recognize risk factors associated with exercise.
- M. Utilize risk stratification and screening processes for participants in exercise programs.

IV. CONTENT:

- A. History and Future of Exercise
 - 1. Fitness in the Age of the Couch Potato
 - 2. Surgeon General's Report on Fitness
 - 3. Healthy People 2010
- B. Recommendations from the "experts"
 - 1. American College of Sports Medicine
 - 2. National Strength and Conditioning Association
 - 3. Surgeon General
 - 4. Other Fitness Associations
- C. Developing Physical Fitness
 - 1. Fitness Components
 - 2. Fitness Testing
 - 3. Fitness Categories
 - 4. Fitness Goals
- D. The Fitness Process: Exercise Training and Adaptation of the Body
 - 1. Principles of Training
 - 2. What is Endurance Fitness
 - a. Endurance Fitness and Maximal Oxygen Consumption
 - b. Assessing Endurance Fitness
 - c. Designing and Endurance Fitness Program
 - d. Over-Distance Training
 - e. Interval Training
 - 3. Principles of Strength Training
 - a. Muscle Function During Exercise
 - b. The Motor Unit
 - c. Choosing Exercises
 - d. Repetitions, Sets and Rest
 - e. Basic Weight Training Exercises
 - f. Developing Power and Speed
 - 4. Jumping and Plyometrics
 - a. Benefits
 - b. Uses
 - c. Progression
 - 5. What Determines Flexibility
 - a. Tissues That Obstruct Range of Motion
 - b. Muscle Elasticity
 - c. Nervous System Control of Muscle Length
 - d. Types of Stretching Techniques
 - e. Benefits of Flexibility and Stretching Exercises
 - f. Principles of Flexibility
 - 6. Body Composition
 - a. Energy Expenditure
 - b. Weight Loss
 - c. Weight Gain
 - d. Energy Balance
- E. Programming
 - 1. General Fitness for Health
 - 2. Higher Levels of General Fitness
 - 3. Fitness Programs and Strength-Speed Sports
 - 4. Skill Development
 - 5. Body Building
 - 6. Endurance Fitness

- F. Benefits and Risks to Exercise
 - 1. Benefits and Risks Associated with Exercise
 - 2. Health Screening and Risk Stratification
 - 3. Working with Special Populations
- G. Special Topics
 - 1. Climate and Exercise
 - 2. Ergogenics
 - 3. Supplements
 - 4. Motivation
 - 5. Home Exercises
- H. Personal Training
 - 1. Liability
 - 2. Insurance
 - 3. Marketing
 - 4. Professionalism
 - 5. Client Retention
 - 6. National Certifications

V. METHODS OF INSTRUCTION:

- A. Lecture
- B. Discussion
- C. Demonstration
- D. Multi-media
- E. Projects
- F. Guest speakers
- G. Internet Research

VI. TYPICAL ASSIGNMENTS:

- A. Reading.
 - 1. Surgeon General's Report on Exercise. Be able to explain the current trends of exercise in the United States. Discuss the implications of exercise on health.
 - 2. American College of Sports Medicine: Guidelines for Exercise Testing and Prescription. Identify risk factors associated with exercise participation.
 - B. Writing, critical thinking problem solving.
- 1. Complete screening inventory. Place individuals into risk stratification and identify appropriate participation limitations.
 - 2. Develop an exercise program for a case study.
 - 3. Evaluate proper technique for weight training exercises.
 - 4. Participate in fitness testing then design a program to improve all areas. Participate in fitness testing 8-12 weeks later showing improvement in all areas assessed.

VII. EVALUATION:

- A. Methods of Evaluation:
 - 1. Examination and quizzes: essay, true/false, multiple choice and fill-in.
Typical quiz questions:
 - a. Draw, label and discuss the motor unit.
 - b. Typical exam question: Define the components of fitness.
 - 2. Projects:
 - A. Develop a program that addresses all areas of fitness
 - B. Conduct a personal training session that is safe and challenging for the participant
 - C. Research new supplements used in performance enhancement using the internet.
 - D. Participate in fitness activities for a minimum of one hour per week in order to fulfill program design based on fitness testing (fulfills one hour of lab assignment outside of class.

Frequency of Evaluation:

1. Minimum of one (1) examination.
2. Quizzes as deemed appropriate throughout the semester.
3. One class project per semester.

VIII. TYPICAL TEXT(S):

Fahey, Thomas D., Super Fitness for Sports, Conditioning, and Health, Boston, Massachusetts: Allyn and Bacon, 2000.

American College of Sports Medicine, ACSM's Guidelines for Exercise Testing and Prescription, (5th edition), Baltimore: Williams & Wilkins, 1995.

U.S. Department of Health and Human Services. Physical Activity and Health: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.

IX. OTHER SUPPLIES REQUIRED OF STUDENTS:

Exercise clothing, shoes and a towel.

