

BERGEN COMMUNITY COLLEGE
Division of Arts, Humanities and Wellness
Department of Wellness & Exercise Science

Course Syllabus

WEX-164, Exercise Science

Semester and Year:

Course and Section Number: Exercise Science, WEX-164

Times/Location:

Instructure:

Office Location:

Office Phone: 201-447-7899

Office Hours: TBD

COURSE DESCRIPTION:

Exercise Science is as theory based investigation of the effects of exercise on human health, fitness and sport performance. Emphasis on basic principles of exercise physiology, exercise prescription, bioenergetics, body composition, bioenergetics, training programs, and practical applications to the exercise setting. Recommended as a prerequisite to WEX-106, WEX-183 and WEX-184. Requirement for Exercise Science Certificate and degree.

4 hours; 3 credits

OUTCOMES STATEMENT:

To investigate exercise and its physiologic effects relative to fitness and health in contemporary society.

STUDENT LEARNING OBJECTIVES:

- A. To investigate terminology pertaining to selected structures sand functions as related to exercise, i.e. musculoskeletal, cardiovascular, body composition, etc.
- B. To investigate the need for exercise and a practice of medicine for prevention and rehabilitation.
- C. To analyze the bioenergetic (energy systems) of exercise and the relative physiologic effects.
- D. To investigate selected exercise and the effects in fitness and health.
- E. To apply the uses of exercise variables i.e. intensity, frequency, duration, in the development of exercise prescriptions.

ASSESSMENT CRITERIA:

- A. Students will demonstrate via testing, written or oral, an understanding of terminology, nomenclature, etc. as it pertains to selected structures and functions i.e. musculoskeletal, cardiovascular, etc.
- B. students shall describe in writing how exercise can act as a preventative and rehabilitative of selected fitness/health variables, i.e. obesity, frailty, CHD.
- C. Students shall describe how the energy systems function and the application to selected exercise modes and prescriptions.
- D. Students shall demonstrate in writing the development of an exercise prescription designed to

affect a predicted outcome, aerobic capacity, body composition, strength, etc.

COURSE CONTENT:

- A. A Perspective on Exercise
 - 1. Definitions
 - 2. Exercise and health
 - 3. Exercise and fitness
 - 4. Status of exercise
 - 5. Exercise and society
- B. Musculoskeletal Considerations - Overview
 - 1. The Skeletal System - major bones of the body as points of attachment for muscle.
 - 2. The Muscular System - overview
 - a. Major muscles and muscle groups
 - b. Function and action
 - c. Leverage - a result of movement
 - d. Muscular involvement in all function
 - e. Effects of exercise
- C. Exercise, Energy, and Metabolism - Bioenergetics
 - 1. Aerobic pathways
 - 2. Anaerobic pathways
- D. Exercise Physiology - Acute and Chronic Adaptations
 - 1. Cardiovascular considerations
 - 2. Muscular considerations
 - 3. Respiratory considerations
- E. Nutrition and Energy
 - 1. Calories and Metabolism - Fats, Carbohydrates, Protein
 - 2. Body Composition
 - 3. Calorie Manipulation
 - 4. Weight Change - gain and loss
 - 5. Basal Metabolic Rate
- F. Exercise and Evaluation
 - 1. Fitness measures - health related/performance related
 - 2. Body composition/weight
 - 3. Cardiovascular - O_2 Consumption
 - 4. Musculoskeletal - strength/endurance
- G. Exercise Programs - Characteristics
 - 1. Aerobic
 - 2. Anaerobic
 - 3. Circuit training
 - 4. Interval training
- H. Exercise and Special Considerations
 - 1. Sex differences
 - 2. Age differences
 - 3. Conditioning vs. competing
 - 4. Exercise for special population groups

PROCEDURES:

- A. Lecture, discussion
- B. Group problem solving
- C. Audio-visual aids
- D. Written assignments, reading assignments
- E. Laboratory practical experience

REFERENCE:

McArdle, WD and Katch, V. Exercise Physiology, 7th Edition, Lippincott, Williams & Wilkins Publishers, 2010.

GRADING:

- A. Grades will be based on a total point accumulation derived from exams, quizzes, and written assignments (laboratory work). *Make-up tests must be scheduled within one week by appointment. There will be no make-up quizzes.*
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| A = 252 - | C+ = 210-223 |
| B+ = 238-251 | C = 196-209 |
| B = 224-237 | D = 168-195 |
| | R = 0-167 |

GRADING POLICY:

A final grade for the course is based on the student's performance on the required work for the course (writing assignments, examinations, quizzes, class presentations, attendance, computer projects, etc.) and on his mastery of the material covered in the course. A student's participation may also be evaluated and used in the determination of a final grade.

ATTENDANCE POLICY:

Students are expected to attend punctually every scheduled meeting of each course in which they are registered. Attendance and lateness policies and sanctions are to be determined by the instructor for each section of the course. These will be established in writing on the individual course outline. Attendance will be kept by the instructor for administrative and counseling purposes.

RULES AND REGULATIONS:

At the beginning of the academic year, each student is expected to obtain a copy of the College Catalog, Student Handbook, and the Academic Calendar. The catalog contains information about the regulations and procedures essential to student life on campus. Every student is responsible for knowing the information included in the catalog and academic calendar.

ACADEMIC AND STUDENT FACILITIES:

Students are referred to the College Catalog which contains a complete listing of available facilities and services including but not limited to: the Sidney Silverman Library, Office of Specialized Services, Bookstore, Computer Labs, Tutoring Center, Athletic and Exercise facilities, etc.

Course sequence and content are subject to change without notice as emphasis on course content may vary.