BERGEN COMMUNITY COLLEGE  
Wellness/Exercise Science Department  
Division of Arts, Humanities & Wellness  
Departmental Policy syllabus

COURSE TITLE: Nutrition for Exercise and Fitness (WEX-106)
COURSE CREDITS/HOURS: 3 lectures, 3 credits
PREREQUISITE: None
SEMESTER & YEAR: Fall & Spring
COURSE NUMBER: WEX-106
MEETING TIMES & LOCATIONS: To be announced
INSTRUCTOR: All
OFFICE LOCATION: G-207
PHONE: 201-447-7899
DEPARTMENTAL SECRETARY: Betty Highkal
OFFICE HOURS: Vary
EMAIL ADDRESS: bhighkal@bergen.edu

COURSE DESCRIPTION:
Nutrition for Exercise & Fitness is a course that explores concepts of nutrition as they apply to exercise and performance. Topics include bioenergetics, thermodynamics and the energy equation, ergogenic aids, supplements and computerized diet analysis. Required for Exercise Science Certificate and Degree.

OUTCOMES STATEMENT:
To analyze the intricate relationship between nutrition knowledge and practice and its effects on exercise performance.

COURSE OBJECTIVES:
A. To explore the elements pertaining to basic principles of nutrition, nutrition standards and guidelines.
B. To analyze the processes involved in metabolism and energy production for muscular work.
C. To investigate the factors that influence how the fuel for muscular work will be used.
D. To investigate the role of macronutrients and micronutrients in the exercise setting based on current scientific evidence.
E. To explore the timing of food consumption affects exercise performance.
F. To analyze the role of supplements and the placebo effect on exercise performance.
MEANS OF ASSESSMENT
A. Test will be administered to determine level of comprehension.
B. Students will develop written scenarios which illustrate the bioenergetics of energy creation in various exercise settings.
C. Students will design a diet program for an exercise using the elements of the energy equation.
D. Students will analyze case studies in exercise nutrition relative to caloric density and nutrition density.

STUDENT LEARNING OBJECTIVES
A. Students shall categorize nutrient groups as to macronutrients and micronutrients, their respective food sources and caloric value.
B. Students shall describe in writing, the three energy systems and their substitutes used for high intensity, moderate intensity and low intensity exercise.
C. Students shall demonstrate in writing the use of isocaloric, negative caloric, and positive caloric balances relative to the energy equation.
D. Students shall list and briefly explain selected popular supplements, i.e. caffeine, creatine, ephedra and their affect as an ergogenic aid.
E. Based on established equations, student will calculate their caloric needs for resting metabolism and exercise requirements.

III. COURSE CONTENT:
A. Nutrition - Basic Concepts
   1. Macronutrients
   2. Micronutrients
   3. Calories in food - calorimetry
   4. Vitamins & minerals
B. Energy Production via Metabolism
   1. The physiology of digestion
   2. From food to energy – metabolism
   3. Factors determining fuel utilization - bioenergetics
C. The Basic Diet and Modifications for Exercise
   1. Nutritional requirements
   2. Food groups
   3. Dietary guidelines
   4. Modifications – carbohydrate loading, nitrogen balancing, etc.
D. Ergogenic Aids
   1. Nutritional aids – caffeine, etc.
   2. Supplements
   3. Anabolic steroids
   4. Pharmacological, physiological
   5. Placebo effect
E. Weight Control – the energy equation
   1. Losing weight
   2. Gaining weight
   3. Exercise -diet connection
F. Fluid Requirements in Exercise
   1. Hydration - Dehydration
   2. Electrolyte replacement
3. When and what to drink
4. Environmental factors

G. Nutrition Planning
   1. Aerobic
   2. Anaerobic
   3. Sport specific
   4. Timing of meals

METHODS OF INSTRUCTION:
   A. Lecture/discussion
   B. Audio-visual aids
   C. Computer analysis of individual diet – IBM computer software.
   D. Assignments – written and reading scheduled through the duration of course.

SUGGESTED READINGS:
   2. Marilyn & Keith Peterson, Eat to compete.

LEARNING RESOURCES/FACILITIES:
   A. Library – texts, audio-visual, computer Internet
   B. Fitness Center
   C. Computer resource rooms
   D. Track, Gymnasium, Pool

SPECIAL FEATURES OF THE COURSE:
Students will be assigned well-designed out of class writing/reading projects during the semester involving journals, research papers, articles, etc. The number and content of assignments are exclusive of writing (essay) required on exams.

The use of the Internet to locate, review and evaluate selected websites appropriate to class content.

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, 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 & 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.

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

PROPOSED COURSE SEQUENCE:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>1</td>
<td>Overview of training for fitness and Sport and connection to nutrition.</td>
<td>Appropriate chapters in text.</td>
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<tr>
<td>2</td>
<td>Overview of nutrients; caloric content; direct conformity; application to exercise.</td>
<td>Appropriate chapters in text.</td>
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<tr>
<td>3</td>
<td>Bioenergetics – energy transfer in the body; energy expenditures during rest and exercise; energy systems.</td>
<td>Appropriate chapters in text.</td>
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<td>4</td>
<td>Carbohydrate metabolism, RQ, pre-exercise, during exercise, post-exercise requirements.</td>
<td>Appropriate chapters in text.</td>
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<td>5</td>
<td>Protein metabolism, RQ, tissue synthesis; protein amounts in diet.</td>
<td>Appropriate chapters in text.</td>
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<tr>
<td>6</td>
<td>Fat metabolism; RQ; functions in body; Lypolysis; amounts in diet; use during exercise.</td>
<td>Appropriate chapters in text.</td>
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<tr>
<td>7</td>
<td>Vitamins – functions; sources; antioxidants; effects on exercise; ergogenic aids.</td>
<td>Appropriate chapters in text.</td>
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<tr>
<td>8</td>
<td>Minerals – Functions; sources; antioxidants, effects on exercise as ergogenic aids.</td>
<td>Appropriate chapters in text.</td>
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<td>9</td>
<td>Water – most essential nutrient; hydration, dehydration, mechanisms; need before, during and after exercise.</td>
<td>Appropriate chapters in text.</td>
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<td>10</td>
<td>Exercise and weight management</td>
<td>Appropriate chapters in text.</td>
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<td></td>
<td>Overweight, overfat, diet classifications; energy equations.</td>
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<tr>
<td>11</td>
<td>Body composition; Somatotype; effects of exercise for change and maintenance.</td>
<td>Appropriate chapters in text.</td>
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<tr>
<td>12</td>
<td>Exercise and body composition; gaining lean body weight; controlling/losing body fat.</td>
<td>Appropriate chapters in text.</td>
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</table>
Ergogenic aids classifications, supplements; placebo effect.

Research in nutrition and exercise – types, quality.

Designing a nutrition plan to support exercise and health at different ages.