

Las Positas College  
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**Course Outline for NUTR 5**  
**NUTRITION/PERFORMANCE & SPORT**  
**Effective: Fall 2020**

**I. CATALOG DESCRIPTION:**

NUTR 5 — NUTRITION/PERFORMANCE & SPORT — 3.00 units

Students will study the role of nutrition in sports, performance and physical fitness. Optimal food, nutrient, and activity choices to maximize athletic performance for all athlete types.

3.00 Units Lecture

**Strongly Recommended**

NUTR 1 - Nutrition  
with a minimum grade of C

**Grading Methods:**

Letter Grade

**Discipline:**

- Nutritional Science/ Dietetics

	<b>MIN</b>
<b>Lecture Hours:</b>	54.00
<b>Total Hours:</b>	54.00

**II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1**

**III. PREREQUISITE AND/OR ADVISORY SKILLS:**

**Before entering this course, it is strongly recommended that the student should be able to:**

**A. NUTR1**

1. Analyze and critically assess the reliability and credibility of nutrition information and dietary advice, services and products.
2. Describe the characteristics, functions and sources of the energy nutrients: carbohydrates, lipids and proteins.
3. Describe the characteristics, functions and sources of the non-energy nutrients: vitamins, minerals and water.
4. Describe the process of digestion, absorption and metabolism, including substrates, location and outcome.

**IV. MEASURABLE OBJECTIVES:**

**Upon completion of this course, the student should be able to:**

- A. Analyze and evaluate the credibility of nutrition information.
- B. Analyze and critically assess the reliability and credibility of nutrition information and dietary advice, services and products as it relates to athletic performance.
- C. Evaluate the efficacy and safety of ergonomic aids, nutrition trends and controversies based on established nutrition science as it relates to athletic performance.
- D. Apply established standards/tools/guidelines to make informed decisions regarding food choices/diet as it relates to athletic performance.
- E. Describe the roles of nutrients in the body as it relates to optimal athletic performance.
- F. Describe the characteristics, functions and sources of the energy nutrients: carbohydrates, lipids and proteins.
- G. Describe the characteristics, functions and sources of the non-energy nutrients: vitamins, minerals and water.
- H. Describe the characteristics, functions and sources of non-nutrients, including phytochemicals and antioxidants.
- I. Compare and contrast nutritional requirements, fluid intake and food sources for endurance/ultra-endurance athletes, strength/power athletes and team sports.
- J. Describe energy balance related to caloric intake, energy expenditure and body composition.

**V. CONTENT:**

- A. Exercise physiology and its implications for sports nutrition
  1. Exercise prescription
  2. Muscle fiber types
  3. Energy sources for different types of work
- B. Carbohydrates
  1. Classification
  2. Digestion
  3. Functions
  4. Blood glucose homeostasis

5. Recommended intakes
6. Glycogen loading
7. Carbohydrate replacement
8. Endurance capacity
- C. Lipids
  1. Classification
  2. Digestion
  3. Recommended intakes
  4. Fat metabolism and utilization during exercise
  5. Training and fatty acid oxidation
  6. Effects of diet on fat metabolism and performance
- D. Proteins
  1. Amino acids and protein structure
  2. Digestion
  3. Functions
  4. Recommended intakes and protein requirements of athletes
  5. Dangers of excess protein intake
  6. Protein usage and athletic performance
- E. Vitamins
  1. Fat-soluble
  2. Water-soluble
  3. Supplements
- F. Minerals
  1. Macrominerals
  2. Trace minerals
  3. Electrolytes
- G. Nutritional ergogenic aids
  1. Supplements
  2. Herbs
  3. Foods
  4. Other substances that may be related to athletic performance
- H. Fluid needs of athletes
  1. Water
  2. Electrolytes
  3. Fluid and electrolyte replacement
  4. Temperature regulation
  5. Ergogenic aspects
- I. Endurance and ultra-endurance athletes
  1. Energy systems
  2. Energy needs
  3. Nutrient requirements:
    - a. Macronutrient
    - b. Micronutrient
    - c. Fluid
- J. Strength and Power athletes
  1. Energy systems
  2. Energy needs
  3. Nutrient requirements:
    - a. Macronutrient
    - b. Micronutrient
    - c. Fluid
- K. Team Sports Athletes
  1. Energy systems
  2. Energy needs
  3. Nutrient requirements:
    - a. Macronutrient
    - b. Micronutrient
    - c. Fluid
- L. Body composition
  1. Body fat distribution
  2. Overweight and obesity
  3. Underweight and eating disorders
- M. Reliable sources of nutrition information
- N. Current issues and controversies in nutrition
  1. Use of ergogenic aids
    - a. Professional athletes,
    - b. Amateur athletes
    - c. Youth athletes

## VI. METHODS OF INSTRUCTION:

- A. Read text and internet based materials
- B. **Discussion** -
- C. Media presentations
- D. **Lecture** -
- E. **Student Presentations** -
- F. Group Activities
- G. **Guest Lecturers** -

## VII. TYPICAL ASSIGNMENTS:

- A. Reading
  1. Read the chapter on Water
  2. Read the table on guidelines for fluid replacement
- B. Discussion
  1. During a moderate exercise session of less than one hour, what type of fluid replacement would be sufficient?
  2. What role do sports drinks play in fluid replacement?
- C. Group Activities
  1. Determine body composition using three different techniques

## VIII. EVALUATION:

### Methods/Frequency

- A. Exams/Tests  
2-3
- B. Quizzes  
2-5
- C. Research Projects  
1
- D. Papers  
1
- E. Class Participation  
Daily
- F. Class Work  
Daily
- G. Home Work  
Daily
- H. Other

### IX. TYPICAL TEXTS:

1. Williams, Melvin. *Nutrition for Health, Fitness and Sport*. Eleventh ed., McGraw-Hill, 2016.
2. Fink, Heather. *Practical Applications in Sports Nutrition*. Fourth ed., Jones and Bartlett Learning, 2015.
3. Dunford, Mary. *Nutrition for Sport and Exercise*. Third ed., Cengage, 2015.

### X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Internet access.