

		SYLLABUS	
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PALAZZI FLORENCE ASSOCIATION FOR INTERNATIONAL EDUCATION
FLORENCE UNIVERSITY OF THE ARTS
APICIUS - INTERNATIONAL SCHOOL OF HOSPITALITY

SCHOOL OF FOOD AND WINE STUDIES
 DEPARTMENT OF DIETETICS AND NUTRITION
DEPARTMENT OF SPORTS SCIENCES
COURSE TITLE: NUTRITION IN THE SPORTS INDUSTRY
COURSE CODE: FWDNNS350

3 Semester Credits

1. DESCRIPTION

This course is a study of the importance of nutrition in sports and exercise in order to maximize athletic potential and performance. Covered topics include energy balance and body composition, food nutrients, role of water, bioenergetics in exercise and training, heat and fluid regulation during physical activity, weight, and eating behaviors. Lectures will focus on different types of activities adapting the treatise of this matter to endurance trained sports, power sports, intermittent sports thus making a distinction between winter and summer sports, male and female athletes requirements.

Students are encouraged to form educated and strategic regimens (exercise and dietary plans) from both scientific and holistic approaches for professional athletes and physically active individuals.

The course is divided into three phases.

Phase 1- Body composition

A correct balance between consumption and intake is fundamental to maintain good health and allow an optimal physical performance for athletes of any category. This course covers athletic body composition and the proper methods to determine it in order to evaluate the energetic consumption and consequently choose the suitable daily calorie intake. Special emphasis will be placed on identifying the specific needs related to the category of sport activity, training frequency, age, and gender. Hands-on activities will focus on the preparation of light meals in order to control or lose weight during training sessions.

Phase 2 - Balancing the menu

Starting from the knowledge of body composition and energy balance this phase will cover the nutrition during the different types of training, before and after competitions. Depending on the type of sport activity, students will analyze the distribution of meals during the day according to the athlete's requirements. This phase will focus on nutrition for training and competition preparation analyzing athletes' breakfast, lunch and dinner as well as recovery meals. The distribution of carbohydrates, proteins and fats as well as vitamins and minerals intake will be

adapted to the different needs. This phase includes hands-on activities that will focus on preparing samples of main and recovery meals for a variety of requirements.

Phase 3 - Special dietary regimens and sport supplements

Even athletes can have eating disorders or specific pathologies that require a tailored diet. Due to the type of intense activity the choices of the sport nutritionist are fundamental in these cases. This phase focuses on special dietary requirements connected to eating disorders, allergies, intolerances and pathologies and will give clear informations on how to substitute ingredients without modifying nutrients intake. Students will approach to gluten-free, low-sugar, dairy-free diets as well as make an analysis of dietary supplements and ergogenic aids based on scientific evidences. The hands-on activities will focus on providing students interesting ideas on how to create appealing and tasty meals based on ingredients substitutions.

2. OBJECTIVES

The goal of the course is to develop students' knowledge of sports nutrition and at same time give practical examples of the dietary regimen that is more suitable for athletes and physically active individuals depending on training frequency and intensity as well as type of performed sport.

Starting from the evaluation of body composition this course will focus on the importance of energy balance and a healthy lifestyle for good quality sports performances. Students will analyze the whole meals plan of different types of athletes and prepare samples of dishes that match specific dietary and physiological needs.

An exclusive section will be dedicated to eating disorders and pathologies that may affect athletes in order to gain knowledge on how to guarantee energy balance even in limit cases.

The course will also give students a complete overview on the sports supplements market, allowing a full understanding of the many negative consequences connected with the consumption and proposing valid natural alternatives to guarantee a balanced nutrients intake.

Upon successful completion of the course students will be able to:

Understand the composition of the human body and the differences between different types of fat and lean mass - Learn the different procedures for body composition assessment and understand their characteristics and suitable applications - Understand the characteristics of energy systems and then be able to decipher the differences and advantages in the metabolism of carbohydrates, proteins and lipids during physical activity - Identify and understand the body's needs for certain nutrients like vitamins and minerals as well as understand the body's daily physiological needs, the consequences and symptoms of either inadequate intake or toxicity for these compounds - Identify the relationship between nutrient intake, caloric intake, body mass index, activity level and exercise performance for endurance, speed, power or a combination of power and endurance and then give dietary suggestions for reaching the individual's goals as well as calculate energy individual energy requirements - Understand the mechanisms of weight gain and how to control them

Understand the importance of an accurate diet plan for better performances and health - Understand the importance of a good physical activity and its benefits on all body systems - Understand how to lose weight by increasing physical activities and balancing the diet accordingly - Understand which are the low-fat alternatives to common and appealing foods - Learn how contemporary cooking techniques can improve food quality even in absence of fats - Learn the suitable methods to design a meal plan based on energy balance and exercise type, and adapt it to athletes with different cultural backgrounds - Understand the relationship between nutrients intake and energy balance - Understand the role of hydration and minerals intake for a correct recovery during and after training

Understand the role and effects of breakfast on daily athlete's performances - Understand which type of nutrients are necessary during and immediately after a competition or training - Learn the suitable foods to be included in recovery meals - Learn how to plan balanced meals to guarantee energy balance during training and exercise sessions - Understand the

differences between pre-training and post-training meals - Understand the features of a plant-based diet and the differences between omnivorous and vegetarian/vegan dietary intake - Be able to analyze how the different intake may affect the energy balance and the absorption of nutrients

Be able to identify eating disorders - Learn how to plan a diet for specific eating disorders - Learn the consequences of common pathologies on athletes nutrition - Learn the risks for health due to the type of pathology - Learn how to balance a gluten-free and/or sugars free diet to guarantee a proper energy balance - Learn the adverse effects of artificial sport supplements - Learn how to *supplement* an athlete's body with only food by planning a suitable diet - Understand the difference between nutraceuticals or functional foods and sport supplements - Learn how and when to apply nutraceuticals or functional foods to athletes' diet

3. REQUIREMENTS

Introduction to Nutrition or equivalent is required for this course

4. METHOD

This course consists of lectures, class discussions, and projects. Mediums for instruction used may include but are not limited to, interactive and hands-on activities which challenge thought processes, academic texts and studies, videos, slides, guided problem solving, and experiential and/or field learning activities where applicable.

5. TEXT BOOK – FURTHER READINGS – RESOURCES

TEXT BOOK

Sports and Exercise Nutrition - McArdle, Katch, Katch - 4th ed. - Lippincott Williams & Wilkins

The Textbooks are pre-ordered and available at: Paperback Exchange in Via delle Oche 4r or laFeltrinelli Via dei Cerretani 40R. Textbooks may also be available for purchase online or in e-book format.

The text book is mandatory for successful completion of the course.

Where applicable, additional materials, handouts and/or notes will be provided by the instructor.

FURTHER READINGS

(Books listed below are available in the FUA library)

The biochemical basis of sports nutrition - R.J. Maughan - M. Gleeson - Oxford University Press - 2011

Sports Nutrition Guidebook - Clark N. - 2008 Human Kinetics - 5th Ed.

Practical Applications in Sports Nutrition - Fink, Burgoon and Milesky-Jones and Bartlett - 2nd Ed. 2008

The Complete Book of Sports Nutrition - Meltzer & Fuller - 2005

Practical Nutrition for a Fit Life - Moore C. - Kendall-Hunt 2004

Nutrition for Health, Fitness and Sport - Williams M. - McGraw-Hill - 9th Ed. - 2010

LIBRARIES IN FLORENCE

The FUA library is located in Corso Tintori 21. Please consult the posted schedules for official opening times. Also note that the library is for consultation only and it is not possible to borrow materials. The library is equipped with a scanner and internet access so that you may save or email a digital copy of the pages needed.

Students may also utilize additional libraries and research centers within the local community:

Biblioteca Palagio di Parte Guelfa

Located in Piazzetta di Parte Guelfa between Piazza della Repubblica and Ponte Vecchio. Please consult the library website for hours of operation: http://www.biblioteche.comune.fi.it/biblioteca_palagio_di_parte_guelfa/

Biblioteca delle Oblate

Located in via dell'Oriuolo 26. Please consult the library website for hours of operation:
www.bibliotecadelleoblate.it

The Harold Acton Library at the British Institute of Florence

Located in Lungarno Guicciardini 9. Please consult the library website for hours of operation.
This library requires a fee-based student membership. For information: www.britishinstitute.it/en

6. FIELD LEARNING

Please consult your Official Registration for any mandatory field learning dates. Field Learning Activities cited in Official Registrations are an integral part of the course and also include an assignment that counts towards your final grade, details will be provided on the first day of class.

7. COURSE MATERIALS

Students are expected to wear the apron provided by the school.
Should students wish to store materials or equipment, lockers are available with a deposit (given back after returning the key).

8. COURSE FEES

Course fees cover course-related field learning activities, visits, and support the instructor's teaching methodologies. Book costs are not included in the course fee. The exact amount will be communicated by the instructor on the first day of class.

9. EVALUATION – GRADING SYSTEM

10% Attendance
30% Class Participation and Assignments
20% Midterm Exam, Field Learning project (if applicable), Special/Research Project (if applicable)
25% Final Exam
15% Paper/Project

A = 93-100 %, A- = 90-92%, B+= 87-89%, B = 83-86%, B-=80-82%, C+ = 77-79%, C=73-76%, C-=70-72%, D = 60-69%, F= 0-59%, W = Official Withdrawal, W/F = Failure to withdraw by the designated date.

10. ATTENDANCE – PARTICIPATION

Academic integrity and mutual respect between instructor and student are central to the FUA academic policy and reflected in the attendance regulations. Student presence is mandatory and counts toward the final grade.

On the **second absence** the attendance and participation grade will be impacted. Please note that missing certain field learning activities may count for more than one absence.

On the **third absence** the instructor may lower the final grade by one letter grade. (Example: Final grade average of 93% or A will become a B).

The fourth absence constitutes automatic failure of the course. Students with excessive absences will be asked to withdraw with a W (if before the deadline) or leave the course with a WF.

Late Arrival and Early Departure

Arriving late or departing early from class is not acceptable. Two late arrivals or early departures or a combination will result in an unexcused absence. Travel is not an exceptional circumstance.

Travel (or delays due to travel) is NEVER an excuse for absence from class.

It is always the student's responsibility to know how many absences he or she has in a course. If in doubt, speak with your instructor!

Participation: Satisfactory participation will be the result of contributing to class discussions by putting forth insightful and constructive questions, comments and observations. Overall effort, cooperation during group work and in-class activities, responsible behavior, and completion of assignments will be assessed. All of the above criteria also apply to Field Learning and site visits if applicable.

11. EXAMS – PAPERS – PROJECTS

The **Class participation and assignments** accounts for 30% of the final course grade.

Class participation (20%) include the students' general conduct and the development of all tasks assigned by the instructor.

Assignments (10%) include readings before class and all other additional assignments that instructors may decide to include if necessary for the achievement of the objectives.

The **Special Project** accounts for 20% of the course grade.

- Format: topic, length, guidelines, and due date will be provided in the course website.
- Material for research will be available in the FUA Library in Corso Tintori 21.

The final **Paper/Project** accounts for 15% of the course grade.

- Format: topic, length, guidelines, and due date will be provided in the course website.
- Material for research will be available in the FUA Library in Corso Tintori 21.

The **Final** exam accounts for 25% of the final course grade.

For exam time, date and format consult the course website.

The time and date of the exam cannot be changed for any reason.

12. LESSONS

Phase 1

Lesson 1	
Topic	Introduction to the course - Definition of sport nutrition and the subjects it is referred to Body composition Body Mass Index (BMI): relationship between BMI and percentage body fat Composition of the human body: muscle, fat and bone Essential and storage fat - Fat-free body mass and lean body mass - Minimal standards for leanness - Gender differences Differences between physically active individuals and elite athletes Body composition assessment procedures: direct and indirect assessment Anthropometric parameters (weight, height and circumferences) Skinfold measurements - BIA (Bioelectrical Impedance Analysis) - Ultrasound - DEXA (dual-energy X-ray absorptiometry)
Objectives	Understand the relationship between Body Mass Index and body fat - Understand the composition of the human body and the differences between different types of fat and lean mass - Learn the different procedures for body composition assessment and understand their characteristics and suitable applications - Learn the different body composition of elite athletes and physically active individuals
Assignment	Textbook Ch.13

Lesson 2	
Topic	Energy balance Relationships between energy expenditure and food intake - Caloric excesses produce substantial weight gain - Genetic factors may influence body weight regulation - Mechanisms of weight gain Worldwide obesity epidemic: overweight, overfatness and obesity - Health risks of excessive body fat Total daily energy expenditure: resting metabolic rate, thermic effects of physical activity and thermic effects of feeding Exercise physiology and eating strategies for different types of sport and for different athletes' gender: the key to an effective and <i>safe</i> weight control
Lab	Water based dough pasta + tomato sauce without mirepoix <i>Preparation of the alcohol-free beer chicken stew ingredients for lesson 3</i>
Objectives	Learn the importance of balancing energy intake and expenditure - Understand the mechanisms of weight gain and how to control them - Understand the factors that energy expenditure depend on - Understand the correct methods to control body weight - Understand how eating strategies must abide by the type of sport, training frequency and gender
Assignment	Textbook Ch. 14

Lesson 3	
Topic	International guidelines for a correct and healthy lifestyle Healthful eating + regular physical activity The appropriate diet plan - MyPlate: principles of good eating - Food choice to build a correct meal - The influence of psychological factors and the modification of eating behaviors Health benefits of physical activity on all body systems - Modification of exercise behaviour - Physical activity for weight control: international recommendations for good health The risks connected to alcohol consumption - The importance of quality and quantity of sleep How to help athletes to appreciate lean food: the use of contemporary techniques and alternative ingredients to produce appealing meals
Lab	Non-fried costoletta alla milanese + tofu based mayonnaise foam Alcohol-free beer chicken stew
Objectives	Understand the importance of an accurate diet plan for better performances and health - Understand the importance of a good physical activity and its benefits on all body systems - Learn the possible psychological factors that can affect a correct lifestyle - Learn which are the risks of alcohol consumption for athletes - Understand the benefits of a good and enough sleep on body functions
Assignment	Textbook Ch.7 - Ch.14 - Ch.11 pp.343-347

Lesson 4	
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Topic	Weight control The consequences and risks connected to energy imbalance: energy expenditure VS food intake Analysis of popular weight loss methods: advantages and disadvantages - The role of modern diets and their consequences on health and sports performance The ketogenic diet: analysis of an evolving method Exercise for weight control: the top 12 physical activities for energy expenditure - Tips for safe and effective weight loss or gain - Effects of weight loss/gain-diets on body composition - Suggestions for overweight young athletes Substituting foods with lower calories content - Contemporary cooking techniques to preserve flavors and nutrients and use less fats - The importance of fibers at the beginning of a meal to increase satiety: advantages and
Lab	Stuffed vegetables - Sous vide cooking methods to preserve nutrients Fat-free flavoring techniques
Objectives	Understand the suitable methods to control or lose weight during training without negatively affecting performances - Learn the effects of modern diets on body composition, health and performances - Analyze the ketogenic diet as an alternative approach for fat loss: discuss the up-to-date studies about the method - Understand how to lose weight by increasing physical activities and balancing the diet accordingly - Understand which are the low-fat alternatives to common and appealing foods - Learn how contemporary cooking techniques can improve food quality even in absence of fats
Assignment	Textbook Ch. 14
NOTE	Test: Phase 1 assessment Research: 3 pages research on one of the Phase 1 topics DUE

Phase 2

Lesson 5	
Topic	Build your own plate Nutrition-Energy interaction: role and importance of macronutrients and micronutrients to design an athlete's meal - Review of nutrients digestion and metabolism International guidelines for protein, carbohydrates and fats intake - Carbohydrates to fuel muscles and increase muscle glycogen stores - Correct proteins and fats intake - Water and salt needs for training, competition and recovery: how to assess and manage hydration The use of nutrients during exercise: focus on defining meal strategies based on training type and training timing Respect of different cultural backgrounds
Objectives	Learn the suitable methods to design a meal plan based on energy balance and exercise type, and adapt it to athletes with different cultural backgrounds - Understand the relationship between nutrients intake and energy balance - Understand the proportions of macronutrients intake to preserve correct body functions - Understand the role of macro- and micronutrients on metabolism and on athletes performances - Understand the role of hydration and minerals intake for a correct recovery during and after training - Learn how to connect exercise timing with a specific and dedicated diet
Assignment	Textbook Ch.4 - Ch.5 - Ch.7 - Ch.10
Lesson 6	

Topic	Breakfast The importance of breakfast: effect of breakfast omission on energy intake and evening exercise performance - Comparison between different breakfast styles (English breakfast, Italian Breakfast, American Breakfast, International Breakfast) - Adapting the different types of breakfast to the established nutrients intake and type of sports Application of tasty healthful ingredients and modern cooking techniques to increase appreciation: the importance of flavors to increase the <i>diet's appeal</i> Breakfast and sport activities - indissoluble marriage: breakfast and training timing
Lab	Torta di ricotta - Buckwheat blinis with agave syrup and fresh fruit - Texturizing eggs
Objectives	Understand the role and effects of breakfast on daily athlete's performances - Learn how to guarantee the same nutrients intake in different styles of breakfast - Understand how the training timing influences the menu choices for breakfast - Learn the proper nutrients intake for different types of sports
Assignment	Refer to syllabus addendum

Lesson 7	
	Mid-Term Exam

Lesson 8	
	Mid-Term Break

Lesson 9	
Topic	Recovery meal Solid and liquid meals to rebuild muscles and restore energy - Why are we more thirsty than hungry after exercise? - The importance of timing to recover energy: why recovery meals within thirty minutes? - The liquid meal: purposes and nutrients absorption - Carbohydrates, proteins, electrolytes and water uptake after exercise Practical recommendations: what to choose and what to avoid after exercise - List of the best recovery foods - The importance of cooperation between Chef and Nutritionist
Lab	Homemade smoothies - Parmigiano Reggiano lollipops and tuiles
Objectives	Understand the purposes of a recovery meal - Understand which type of nutrients are necessary during and immediately after a competition or training - Learn the suitable foods to be included in recovery meals - Learn what to avoid in recovery meals and the possible consequences - Learn how to produce healthy recovery meals: both liquid and solid meals
Assignment	Refer to syllabus addendum

Lesson 10	
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Topic	Lunch and dinner for physically active individuals and elite athletes Main meals and exercise timing: how to find the suitable match Differences between pre-training and post-training meals - Meals and snacks during training sessions and competitions - Athletic injuries and nutrition Lunch & competition: how to deal with it?
Lab	Fat free risotto - obtaining a creamy texture without any fat addition - pressure and traditional cooking Fake pasta alla carbonara (durum wheat semolina pasta, smoked duck breast, rice milk sauce, Parmigiano Reggiano)
Objectives	Understand the connection between meals and body functions - Learn the correct timing for meals depending on the type of exercise - Understand the consequences of a non appropriate food choice on athletes performance - Understand the consequences of a wrong meals schedule on general health of the athletes
Assignment	Refer to syllabus addendum

Lesson 11	
Topic	The vegetarian/vegan athlete: plant-based diet and health Definition of vegetarianism - The fundamental staples for a complete and healthy plant-based diet - Main differences between omnivorous and vegetarian dietary intake - Possible limits of athletes' performance due to a vegetarian/vegan diet: how to compensate some protein and micro nutrients shortage in a plant-based diet Vegan athletes and their performances: the importance of an accurate dietary plan for a correct energy balance Breakfast, recovery meals and main meals for the vegetarian/vegan athlete
Lab	Example of balanced vegetarian/vegan meals and recovery snacks: Seitan steak in sesame crust with olive oil, tamari and thyme emulsion Quinoa, seaweeds and mushrooms salad with vegetables, pumpkin seeds Almond milk, turmeric and apples sport drink
Objectives	Understand the features of a plant-based diet and the differences between omnivorous and vegetarian/vegan dietary intake - Be able to analyze how the different intake may affect the energy balance and the absorption of nutrients - Understand the limits of the vegan diet for some nutrients absorption and learn how to set a meal plan to guarantee as much balance possible
Assignment	Refer to syllabus addendum
NOTE	Test: Phase 2 assessment Research: 3 pages research on one of the Phase 2 topics DUE

Phase 3

Lesson 12	
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Topic	Eating disorders Differences between <i>disordered eating</i> and <i>eating disorders</i> : how the first case may be the precursor of the second Overview of different studies of common eating disorders in athletes Clinical eating disorders: bulimia, anorexia, bigorexia, binge-eating disorder Difference between anorexia <i>nervosa</i> and <i>athletica</i> - Strategies when approaching to athletes with eating disorders - Guidelines for parents, coaches and trainers regarding eating disorders - Tailored-made diet for athletes affected by these types of psychological-based disorders Pathologies and common diseases : celiac disease and diabetics - Risks for health and performance due to the type of pathology The celiac athlete - Evidence about sports and gluten-free diet The diabetic athlete: balancing the diet for a correct sugars intake - Alternative ingredients for diabetics
Lab	Sushi - Amaranth and raw vegetables salad, avocado oil and goji berries Sea-bass marinara style, poached vegetables: classic and contemporary version
Objectives	Understand how disordered eating can bring to eating disorders - Be able to identify eating disorders - Understand the psychological matrix of eating disorders to be able to choose the right strategy and approach - Learn how to plan a diet for specific eating disorders - Learn the consequences of common pathologies on athletes nutrition - Learn the risks for health due to the type of pathology - Understand the consequences of celiac disease and diabetics on performance - Learn how to balance a gluten-free and/or sugars free diet to guarantee a proper energy balance
Assignment	Textbook Ch.15

Lesson 13	
Topic	Sport supplements: truth or marketing? Analysis of the common promises offered by supplements industry: improving strength and power, weight and fat loss, increase energy supply, improve immune functions and resistance to illness and infections, improve joints health The <i>not-always rational</i> decision to take supplements: survey on the common reasons for supplements intake - Psychological and physiological athletes needs Marketing strategies VS reality International guidelines about sports supplements Adverse effects of artificial sport supplements - Vitamin D and exercise - Effects of caffeine - Protein or carbohydrate uptake after exercise? Or maybe both? Artificial supplements VS Food: a suitable and varied diet can provide all essential nutrients in adequate amounts
Lab	Homemade energy bars
Objectives	Understand the marketing strategies behind sport supplements consumption - Understand the <i>non-rational</i> decision at the base of sport supplements consumption - Learn the composition of sport supplements and the usual contaminations found in tablets and powders - Learn the adverse effects of artificial sport supplements - Learn how to <i>supplement</i> an athlete's body with only food by planning a suitable diet - Learn how to choose dedicated food to increase nutrients intake - Understand the effects of caffeine on athletes' body

Assignment	Textbook Ch.11 - Ch.12
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Lesson 14	
Topic	Nutraceuticals, functional foods and sport performance - “Let food be your medicine” Definition of nutraceuticals: products derived from food sources with extra health benefits in addition to the basic nutritional values Definition of functional foods: whole foods or fortified, enriched and enhanced dietary components providing health-benefits beyond the traditional nutrients they contain Survey on common nutraceuticals and their purposes: antioxidants, omega 3 and 6 fatty acids, vitamins, enzymes, probiotics - Application of nutraceuticals to sports nutrition - The nutritional and pharmaceutical features of beetroot, cherry juice, cocoa Is beer after exercise a good choice?
Lab	Beetroot and ginger veloute', dried ricotta, gluten free croutons Yoghurt gelatine, oily seeds and nuts, sugar-free cherry compote
Objectives	Understand the difference between nutraceuticals or functional foods and sport supplements - Learn the purpose of nutraceuticals uptake - Learn which ingredients can be defined nutraceuticals and which are their features - Learn how and when to apply nutraceuticals or functional foods to athletes' diet - Understand the characteristics of cocoa, cherry juice and beetroot - Learn how to use these ingredients preserving their healthful values - Understand how beer can be a tempting choice but with undesirable effects
Assignment	Refer to syllabus addendum
NOTE	Test: Phase 3 assessment Research: 3 pages research on one of the Phase 3 topics DUE

Lesson 15	
	FINAL EXAM