

MODULE	SUBJECT MATTER	YEAR	SEMESTER	CREDITS	TYPE
Physical activity and sports science	Nutrition in physical activity and sport	6º	1º	6	Optional
TEACHING STAFF ⁽¹⁾			ADDRESS, TELEPHONE NUMBER, EMAIL, ETC. DIRECCIÓN COMPLETA DE CONTACTO PARA TUTORÍAS (Dirección postal, teléfono, correo electrónico, etc.)		
<ul style="list-style-type: none"> Celia Rodríguez Pérez 			Department of Nutrition and Food Science, 3rd floor. Faculty of Education and Sports Sciences, Melilla Campus. Office 309. Email: celiarp@ugr.es		
			Tuesday: 12-14 h* Wednesday: 10-14 h* <i>*Please, send an email to the professor to arrange the appointment.</i>		
BELONGS TO UNDERGRADUATE DEGREE PROGRAMME			AND ALSO TO OTHER UNDERGRADUATE DEGREE PROGRAMMES		
Double Degree in Primary Education and Physical Activity and Sports Sciences. MELILLA CAMPUS.					
PREREQUISITES OR RECOMMENDATIONS (where applicable)					
Have completed the subjects of Human Physiology and Biochemistry of Physical Exercise					
BRIEF DESCRIPTION OF CONTENT (ACCORDING TO OFFICIAL VALIDATION REPORT)					
<ul style="list-style-type: none"> • Study of nutritional and energy requirements and recommended intakes for optimal health. • Study of the specific nutrient needs for athletes and study of suitable foods to cover them. • Training, competition and recovery diets. 					

¹ Consult any updates in Acceso Identificado > Aplicaciones > Ordenación Docente

(∞) This course guide should be filled in according to UGR regulations on assessment of student learning: ([http://secretariageneral.ugr.es/pages/normativa/fichasugr/ngc7121/!](http://secretariageneral.ugr.es/pages/normativa/fichasugr/ngc7121/))



- Study of the most common nutritional disorders in athletes.
- Assessment of nutritional status.

GENERAL AND SPECIFIC COMPETENCES

A. General competences

- Capacity for analysis and synthesis (CGI1).
- Organizational and planning capacity (CGI2).
- Oral and written communication skills (CGI3).
- Ability to access and manage information (CGI5).
- Ability to solve problems (CGI6).
- Ability to make decisions autonomously (CGI7).
- Ability to work in an international context (CGP1).
- Skills in interpersonal relationships and teamwork (CGP2).
- Critical and self-critical capacity (CGP4).
- Autonomy in learning (CGS1).
- Ability to apply knowledge to practice (CGS2).
- Flexibility and ability to adapt to new situations (CGS3).
- Leadership, creativity and empathy ability (CGS4).

B. Specific competences

- Evaluate the nutritional quality of the diet (N1).
- Assess nutritional status based on anthropometric, biochemical and dietary parameters (N2).
- Choose the most suitable foods based on their composition to prepare balanced and suitable diets for athletes based on individual characteristics and type of physical activity developed (N3).
- Issue nutritional advice for optimal health and high-performance sports (N4).

OBJECTIVES (EXPRESSED AS EXPECTED LEARNING OUTCOMES)

At the end of this course the student is expected to be able to:

- Know and transmit the basic principles in human nutrition with special attention to the incorporation of nutrients that promote a healthy lifestyle and obtain optimal performance in sports.
- Use and interpret the tables of food composition and recommended intakes of energy and nutrients to design healthy and adequate diets for the different periods of sports activity (training, competition and recovery).

DETAILED SYLLABUS

THEORY

SECTION 1. NUTRITIONAL NEEDS.

- **Unit 1. GENERALITIES.** Nutrition and food science: definitions. Food, nutrient, portions and diet concept. Goals. Historical evolution. Relationship with other sciences. Current situation and prospects. Bibliographical sources.
- **Unit 2. ENERGY REQUIREMENTS.** Energy requirements of the human body. Components of energy metabolism: basal metabolism, food-induced thermogenesis, and energy expenditure from physical activity. Methodology for determining energy expenditure
- **Unit 3. NUTRITIONAL REQUIREMENTS.** Nutritional requirements and recommended intakes. Nutritional



goals. Nutrients energy value. Food composition tables and databases. Food guides.

SECTION 2. FOOD, NUTRITION AND METABOLISM.

- **Unit 4. CARBON HYDRATES.** Classification. Food sources of carbohydrates. Digestion of carbohydrates. Glycaemic index and its use in sports. Nutritional requirements and recommendations. Use and needs of carbohydrates before, during and after the competition.
- **Unit 5. LIPIDS.** Composition and classification. Dietary sources of lipids: vegetable fats, animal fats. Digestion and lipid metabolism. Nutritional requirements and recommendations. Use and lipid needs of athletes. Relationship between lipid consumption and health.
- **Unit 6. PROTEINS.** Composition and classification. Food sources of proteins. Digestion and protein metabolism. Protein quality assessment. Nutritional requirements and recommendations. Use and protein needs of athletes. Relationship between protein consumption and health.
- **Unit 7. VITAMINS.** Classification: water-soluble and fat-soluble vitamins. Food sources of vitamins. Vitamins as sports biological analeptics. Vitamin requirements and recommendations. Use and needs of vitamins in athletes. Deficit, excess and health.
- **Unit 8. MINERALS.** Classification: macro and microelements. Food sources of minerals. Vitamin requirements and recommendations Mineral needs in certain groups of athletes. Deficit, excess and health.
- **Unit 9. WATER BALANCE.** Assessment of normal water need. Role of water in thermoregulation. Dehydration Beverage classification and composition. Liquid administration in athletes. Factors influencing fluid replacement.

SECTION 3. NUTRITION AND DIET IN SPORTS PRACTICE.

- **Unit 10. DIETARY PORTION IN THE TRAINING PERIOD.** Establishment of the individual regime. Training portion: theoretical and practical bases, examples of menus.
- **Unit 11. FOOD REGIME IN LONG-TERM SPORTS THAT REQUIRE FOOD DURING THE COMPETITION.** Cycling. Triathlon, marathon, mountaineering, Nordic skiing, others. Recovery ration. Theoretical and practical bases.
- **Unit 12. FOOD PORTION IN TEAM SPORTS. SPORTS OF MEDIUM DURATION.** Soccer, basketball, handball, others. Theoretical and practical bases.
- **Unit 13. FOOD REGIME IN SPORTS THAT DO NOT ALLOW FOOD DURING THE COMPETITION.** Sports characterized by a brief effort: pole vault, jumps, length. Judo, weightlifting, other Sports characterized by continued effort, medium depth. The series problem. Theoretical and practical bases.

SECTION 4. MYTHS AND REALITIES IN SPORTS NUTRITION.

- **Unit 14.** Nutritional Ergogenic aids.
- **Unit 15.** Nutritional disorders in athletes. Nutrition and immune function in athletes.
- **Unit 16.** Common nutritional myths in athletes. Correct use of the nutritional needs of athletes on web pages.

PRACTICE

Seminars/Workshops

- **Practice 1.** Calculation of the individual's energy needs.
- **Practice 2.** Food composition table.
- **Practice 3.** Assessment of nutritional status.
- **Practice 4.** Preparation of diets for different sports.
- **Practice 5.** Elaboration of diets in the different stages of physical activity.



- **Practice 6.** Introduction to anthropometric as a tool for nutritional assessment.

BIBLIOGRAPHY

BASIC READING LIST

- Nutrición en la actividad física y el deporte. José Enrique Sirvent Belando. Publications Universitat Alacant (2017).
- SPORT NUTRITION. Asier Jeukendrup and Michael Gleeson. Human Kinetics. Champaign, IL, (2004).
- NUTRICIÓN PARA LA SALUD, LA CONDICIÓN FÍSICA Y EL DEPORTE. Melvin H. Williams. McGraw Hill, Barcelona, (2006).
- ESSENTIALS OF SPORTS NUTRITION AND SUPPLEMENTS. Edited by José Antonio... [et al.] Totowa, NJ: Humana Press, 2008.
- SPORTS NUTRITION (fats and proteins). JudyA. Driskell, CRC Press, Boca Raton, (2007).
- SPORTS AND EXERCICE NUTRITION. W. D. McArdle, F.I. Katch and V.L. Katch. Tercera Edición. Wolters Kluwer, Philadelphia (2009).
- NUTRICIÓN EN EL DEPORTE: Un enfoque práctico Louise Burke. Editorial Médica Panamericana, Madrid (2010).
- NSCA's GUIDE TO SPORT AND EXERCICE NUTRITION. Bill I. Campbel and Marie A. Spano. Human Kinetics, USA, (2011).
- GUÍA PRÁCTICA DE NUTRICIÓN DEPORTIVA-Asker Jeukendrup. Tutor, Madrid, (2011).
- NUTRICIÓN EN EL DEPORTE: AYUDAS ERGOGÉNICAS Y DOPAJE. Javier González Gallego, Pilar Sánchez Collado, José Matáix Verdú, Díaz de Santos: Fundación Universitaria Iberoamericana, (2006).

COMPLEMENTARY READING

- Students will be provided with a complementary and updated bibliography in each of the sections.

RECOMMENDED LINKS

- Gatorade Sports Science Institute www.gssiweb.com
- Nicholas Institute of Sports Medicine and Athletic Trauma www.nismat.org
- Sport Science www.sportsci.org
- Nutrition society www.nutritionssociety.org
- USDA Food and Nutrition Service <http://www.fns.usda.gov/fns/>
- American College of sports medicine www.acsm.org
- International society of sports nutrition www.sportsnutritionssociety.org
- Sports, cardiovascular and wellness nutrition www.scandpg.org

TEACHING METHODOLOGY

The methodology will be based on strategies typical of an active and autonomous teaching, focused on the figure of the student as a key element of the training system and with the participation of the teacher as facilitator and facilitator of the learning process. For the development of the general agenda, the following models and teaching tools will be used:

- Master lesson.
- Seminars in which the material to be used will be previously provided to the students.
- Tutorials, through which the students will be oriented on the autonomous work to be carried out in the subject, as well as on their comprehensive academic training.
- Self-assessment questionnaires for each topic using the PRADO platform.
- Use of discussion forums where the contents of the subject will be expanded, where students can propose



and discuss topics of interest and that will also serve to resolve doubts related to the subject to be taught, both by the teacher and the teacher. rest of colleagues.

Distribution of hours:

- Theoretical classes: 45 contact hours.
- Seminars: 10 contact hours.
- Presentation and defence of work done: 5 contact hours.
- Study and work, both, independently and in groups: 60 non-contact hours.

ASSESSMENT (ASSESSMENT INSTRUMENTS, CRITERIA AND PERCENTAGE VALUE OF FINAL OVERALL MARK, ETC.)

ORDINARY CALL

A continuous assessment will be carried out, both of the theoretical program and of the practical one, in which the feedback with the students will be constant and in which different resources and tools will be provided. This method will be focused on the students achieving the necessary competencies for the subsequent employment in the workplace.

- There will be a partial test type at the end of each block of the subject that will be computed with up to 40% of the final grade and that will include a multiple-choice question and another with short-answer questions. Each partial will include 48 multiple-choice questions, with 4 answers, only one correct. Blank questions do not score, incorrect questions subtract 0.33% of the final score. Total score of 8 out of 10 plus 2 short-answer questions worth 1 point each. The total duration of the exam will be 60 minutes. The exams must have a grade of at least 5 out of 10 to use the continuous evaluation system.
- Problem-based learning. Students will have to deliver a portfolio with the assumptions made in each of the sections of the subject. At the beginning of the course, students will be provided with the rubric for each block. It will represent up to 15% of the final grade.
- Preparation of a portfolio with the results derived from the seminars. It will represent up to 15% of the final grade.
- Preparation and presentation of autonomous bibliographic research works on previously established topics. It will compute up to 20% of the final grade and includes its individual and/or group preparation, its presentation and its presentation and defence in class. At the beginning of the course, students will be provided with the rubric of both the written work and the exhibition.
- Attendance and active participation in class, discussion forums through the Facebook group and a blog enabled for the subject related to the proposed topics: 10% of the final grade.

In order to apply this evaluation system, it is necessary that the theoretical exam score is at least 5 out of 10.

EXTRAORDINARY CALL.

- There will be an exam with all the theoretical material included in the syllabus. It will be a test-type exam with 60 multiple-choice questions and 2 short-answer questions. The multiple-choice questions will have 4 answers, only one correct. Blank questions do not score, incorrect questions subtract 0.33% of the final score. Total score of 8 for test-type questions plus 2 short-answer questions worth 1 point each. The total score obtained in the rest of the activities proposed other than the theoretical evaluation will be maintained and weighted whenever a minimum grade of 4.5 out of 10 is reached in the exam.

DESCRIPTION OF THE EXERCISES WHICH WILL CONSTITUTE SINGLE FINAL ASSESSMENT AS ESTABLISHED IN UGR REGULATIONS

- It will be carried out in a single academic act consisting of a theoretical-practical exam. The theoretical part



will represent 70% of the final grade (60 test questions. The multiple-choice questions will have 4 answers, only one correct. Blank questions do not score, incorrect questions subtract 0.33% from the final score) and the practical part 30% (resolution of 3 problems). The total stipulated duration will be 120 minutes. The students who wish to avail themselves of this evaluation modality will have to request it to the Director of the Department in the first two weeks of the teaching of the subject, citing and accrediting the reasons that assist them for not being able to follow the system of continuous assessment.

SCENARIO A (ON-CAMPUS AND REMOTE TEACHING AND LEARNING COMBINED)

TUTORIALS

TIMETABLE

(According to Official Academic Organization Plan)

Tuesday: 12-14 h*

Wednesday: 10-14 h*

*Please, send an email to the professor to arrange the appointment.

TOOLS FOR TUTORIALS

(Indicate which digital tools will be used for tutorials)

- Face-to-face in the teacher's office whenever the situation allows it.
- Google Apps UGR Meet prior email to arrange a tutorial.
- PRADO forums and messaging.

MEASURES TAKEN TO ADAPT TEACHING METHODOLOGY

- The teaching methodology will be maintained as established in the POD. The agenda will be taught with the number of students stipulated by the Faculty of Health Sciences to safeguard the safety distance. In any case, an attempt will be made to maximize the presence of the students. A guide for each topic will be uploaded to the PRADO platform to facilitate student monitoring of the subject.

MEASURES TAKEN TO ADAPT ASSESSMENT (Instruments, criteria and percentage of final overall mark)

Ordinary assessment session

A continuous assessment will be carried out, both of the theoretical program and of the practical one, in which the feedback with the students will be constant and in which different resources and tools will be provided. This method will be focused on the students achieving the necessary competencies for the subsequent employment in the workplace.

- There will be a partial test type at the end of each block of the subject that will be computed with up to 40% of the final grade and that will include a multiple-choice question and another with short-answer questions. Each partial will include 48 multiple-choice questions, with 4 answers, only one correct. Blank questions do not score, incorrect questions subtract 0.33% of the final score. Total score of 8 out of 10 plus 2 short-answer questions worth 1 point each. The total duration of the exam will be 60 minutes. The exams must have a grade of at least 5 out of 10 to use the continuous evaluation system.
- Problem-based learning. Students will have to deliver a portfolio with the assumptions made in each of the sections of the subject. At the beginning of the course, students will be provided with the rubric for each block. It will represent up to 15% of the final grade.
- Preparation of a portfolio with the results derived from the seminars. It will represent up to 15% of the final grade.
- Preparation and presentation of autonomous bibliographic research works on previously established topics. It will compute up to 20% of the final grade and includes its individual and/or group preparation, its presentation and its presentation and defence in class. At the beginning of the course, students will be



provided with the rubric of both the written work and the exhibition.

- Attendance and active participation in class, discussion forums through the Facebook group and a blog enabled for the subject related to the proposed topics: 10% of the final grade.

Tools used for evaluation:

- PRADO self-assessment questionnaires (theory).
- PRADO Exam Questionnaires. Each partial will include 48 multiple-choice questions, with 4 answers, only one correct. Blank questions do not score, incorrect questions subtract 0.33% of the final score. Total score of 8 out of 10 plus 2 short-answer questions worth 1 point each. The total duration of the exam will be 60 minutes. The exams must have a grade of at least 5 out of 10 to use the continuous evaluation system. Percentage on final grade: 40%
- PRADO tasks. Portfolio with the assumptions raised in each of the blocks of the subject. It will represent up to 15%
- PRADO tasks. Preparation of a portfolio with the results derived from the seminars (practices). It will represent up to 15% of the final grade.
- PRADO and Google Apps UGR Meet tasks (theory). Preparation and presentation of autonomous bibliographic research works on previously established topics. Percentage on final grade: 20%
- Forums, virtual / face-to-face assistance and active face-to-face / virtual participation (theory). The participation of the student will be evaluated, as well as the interest of the proposed topics and the discussions generated in the forums set up for this purpose.
- Percentage on final grade: 10%

Extraordinary assessment session

- PRADO Exam Questionnaires. There will be an exam with all the theoretical material included in the syllabus. It will be a test-type exam with 60 questions and 2 short questions. The multiple-choice test questions will have 4 answers, only one correct. Blank questions do not score, incorrect questions subtract 0.33% of the final score. Total score of 8 for test-type questions plus 2 short-answer questions worth 1 point each. The total score obtained in the rest of the activities proposed other than the theoretical evaluation will be maintained and weighted whenever a minimum grade of 4.5 out of 10 is reached in the exam.

Single final assessment

- PRADO Exam Questionnaires. It will be carried out in a single academic act consisting of a theoretical-practical exam. The theoretical part will represent 70% of the final grade (60 test questions. The multiple-choice questions will have 4 answers, only one correct. Blank questions do not score, incorrect questions subtract 0.33% from the final score) and the practical part 30% (resolution of 3 problems). The total stipulated duration will be 120 minutes. The students who wish to avail themselves of this evaluation modality will have to request it to the Director of the Department in the first two weeks of the teaching of the subject, citing and accrediting the reasons that assist them for not being able to follow the system of continuous assessment.

SCENARIO B (ONCAMPUS ACTIVITY SUSPENDED)

TUTORIALS

TIMETABLE
(According to Official Academic Organization Plan)

TOOLS FOR TUTORIALS
(Indicate which digital tools will be used for tutorials)

Firma (1): MIGUEL MARISCAL ARCAS
En calidad de: Secretario/a de Departamento



UNIVERSIDAD DE GRANADA

INFORMACIÓN SOBRE TITULACIONES DE LA UGR
grados.ugr.es



Tuesday: 12-14 h*
Wednesday: 10-14 h*

*Please, send an email to the professor to arrange the appointment.

- Google Apps UGR Meet prior email to arrange a tutorial.
- PRADO forums and messaging.
- For specific group questions: WhatsApp application (through the course delegate).

MEASURES TAKEN TO ADAPT TEACHING METHODOLOGY

- The teaching methodology will be maintained as established in the POD. The agenda will be taught with the number of students stipulated by the Faculty of Health Sciences to safeguard the safety distance. In any case, an attempt will be made to maximize the presence of the students. A guide for each topic will be uploaded to the PRADO platform to facilitate student monitoring of the subject.

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Ordinary assessment session

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- Forums, virtual / face-to-face assistance and active face-to-face / virtual participation (theory). The participation of the student will be evaluated, as well as the interest of the proposed topics and the discussions generated in the forums set up for this purpose.
- Percentage on final grade: 10%

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ADDITIONAL INFORMATION (if necessary)

